Textile World

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Textile World

May, 1936

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Editor: DOUGLAS G. WOOLF

And the Answer Is the Same in 1936

THE debate goes round and round, but doesn't seem to come out anywhere. We are now back to the spring of 1933 in this argument of government regulation versus industrial self-government. A lot of bright ideas are being advanced just as if they were something new. The latest episode has been the public endorsement of the Ellenbogen Textile Control Bill by the board of directors of the National Federation of Textiles, Inc.

Now let's get the record straight.

In the first place, this association represents a part of the rayon and silk industry. Against this section of one branch of the industry are the great cotton, wool, and knitting branches, as well as that important part of the rayon industry represented by the National Rayon Weavers Association. We know that the great majority of those groups are unalterably opposed to the Ellenbogen Bill.

Within the last month, officials of most of those organizations have so declared themselves. In Pinehurst, Dr. C. T. Murchison, president of the Cotton-Textile Institute, referred to the "threatened re-imposition of Federal legislation through the salamander-like Ellenbogen Bill" as one of the factors which endangered recovery in the industry. Arthur Besse, in a letter to his members, stated that, while some of the objectionable provisions of the original measure had been removed, the bill "still retains many features which make it unacceptable to most units in the textile industry." Earl Constantine, of National Association of Hosiery Manufacturers, and Roy A. Cheney, of Underwear Institute, in addressing their respective conventions, both referred to the threat of this proposed legislation. H. E. Bishop, of Throwsters Research Institute, and Harvey Willson, of National Upholstery and Drapery Textile Association, have put their associations on record as opposed. We have re-checked this matter very recently with these men, and with other leaders in the various branches of the industry, and find their opposition is unwavering. We also find a strong opposition group within the ranks of the Federation itself.

And yet, there was created in the public mind —largely because of the ambiguous title "National Federation of Textiles, Inc."—the impression that the textile industry had had a change of heart on Mr. Ellenbogen's creation.

Well, it just isn't so.

■

Important as a public understanding of this matter is, however, it is far more important that the industry itself keep clearly in mind the fundamental issue involved.

For there is one main issue: namely, the difference between the sort of regulation proposed in the Ellenbogen Bill and the sort of a job most branches of the textile industry have been trying to do for themselves during recent years. This difference is a wide one; it is, in fact, the difference between eventual failure and potential success.

And yet, there has been a tendency—often intentional on the part of proponents of specific legislation—to wave aside this difference and to make it appear that the two jobs are similar.

We said above that the debate had got around to the spring, 1933, stage. At that time, it will be recalled, we passed through a tug-of-war between those groups favoring rigid legislation of the Black 30-hour bill type and those standing for legislation which would permit an industry to run its own show, with proper governmental aid not only for restraining the so-called chiseling fringe but to protect the public interest.

The result is history. The latter school won and the National Industrial Recovery Act became a part of the law of the land. During most of the life of that act, the textile industry —at least—governed itself.

In the midst of that pre-NRA debate, we commented on one piece of then pending legislation—Secretary Perkins' bill to regulate labor in industry—as follows:

"If we were asked to write a prescription for the textile industry, we could not improve upon the one contained in that bill. In a masterly way, the Secretary summarized all the aspirations of

industry itself, or rather of the enlightened majority in industry. The only difference is that we insist the job must be done by industry, and not by government. This insistence is based not upon a belief in the 'divine right' of industry, but upon the conviction that self-government is the only method which promises permanent success. The other alternative would mean (1) the gradual removal of individual incentive; and (2) the gradual dependence of all groups upon governmental aid and direction. We are by no means ready to admit that we have degenerated to the point where such a régime is the only answer."

We stand four-square on that same platform today. Exactly the same reasoning can be applied to the present Ellenbogen Bill discussion, with the same principle developing as a conclusion.

■

A recent convert to the Ellenbogen cause says: "The proposed act would set up a 'little Federal Trade Commission' for the textile industry. . . . Other divisions of the textile industry . . . have been able to do splendid work in maintaining fair competitive conditions through voluntary effort. The proposed act will give these divisions an opportunity to secure the backing of Federal Government to those well-directed efforts."

We shall have to risk our editorial dignity. The only answer to that one is: "Horse feathers!"

Get this straight: The proposed act is *not* a potential medium for self-government. It is, on the contrary, a potential medium for bureaucratic control. The F.T.C. acts principally as an umpire; this bill would set up a body to make and unmake the rules of the game. It is not necessary to speculate on this. All we need to do is to set down an extract or two from the bill itself:

"Whenever, upon investigation made under section 13 hereof, the commission finds that the payment of low wages or the exaction of excessive hours of employment or the imposition of any unfair conditions of employment, including conditions of work assignment, adversely affect commerce in the textile industry, the commission shall establish such minimum wages for the various occupations and classes of skill in the various divisions and subdivisions of the textile industry as it may find necessary to eliminate such adverse effects upon commerce. Upon the establishment of such minimum wages the commission shall forthwith publish the same, and the minimum wages so established shall become effective upon expiration of sixty days after such publication. . . .

"The basis for determining minimum wages shall be a thirty-five-hour week of seven hours per day; for all work done in excess of seven hours per day or in excess of thirty-five hours per week, employees shall be paid at the rate of time and one-half, and for all work done on Sundays and legal holidays they shall be paid at the rate of double time, except as hereinafter provided."

If that's self-government, we'll take vanilla.

■

The Ellenbogen convert mentioned above puts opponents of the bill in the "Do Nothing" class. That's an old one. It sometimes works.

However this writer, for one, is not going to be scared into the Ellenbogen fold by this "Do Nothing" stigma. Our record—and that of the major organizations in the industry who are included in this classification—has been a positive, not a negative one: a long fight for self-government, with teeth. That fight has been partly won—and complete victory will come eventually

It was this fight which we had in mind when we stated, in our Annual Number in February that the fate of the basic code provisions in 1936 "is the most important single consideration facing the industry as a whole" and recommended definite steps for insuring their perpetuation.

It was this same fight which Dr. C. T. Murchison had in mind when he declared last month:

"It is the solemn duty of this industry, when a sound business procedure is at stake for supposedly legal reason, not to evade litigation but to invite it. If concerted action in the form of a definite agreement is essential to the maintenance of fair standards as regards the hours of employment and the number of labor shifts or any form of competitive practice, where the facts of the situation clearly point to the desirability of such standards in the public interest, the industry is remiss in its obligations to labor, to stcokholders and to the public at large if it permits the thing we call doubtful legality to stand in the way of a vigorous and decisive establishment of those standards."

That, in our opinion, is a real call to self-government. In other words those manufacturers who had hesitated about signing the Institute's voluntary agreement on code conformance, merely because their lawyers had warned of possible legal complications in so doing, should sign as a public duty, even at the risk of incurring such litigation. Despite the weakness of voluntary agreements, they are the only means now existing whereby an industry can strive to enforce its standards and at the same time preserve its independence as a free agency. Eventually, we are sure, laws will be changed so that government aid to that end, without government, or commission control, will be forthcoming. Meanwhile, it is up to individual manufacturers to play the game.

Storm Warnings Repeated

LAST MONTH, we warned against the serious price situation in staple cotton fabrics. This month, the warning must be repeated—and then some.

Manufacturing margins on carded cotton fabrics, as reflected by TEXTILE WORLD's index, struck a new low in April for the series, which extends back to August, 1933. In other words, profit possibilities were slimmer in this division last month than at any time since the beginning of NRA.

The cause commonly ascribed for this degeneration is over-production. It is true that mill schedules ran merrily on despite shrinkage in demand. In this connection, it is encouraging to note a growing realization of the need for curtailment in this branch of the industry.

But, false hopes should not be aroused. Even at times when there has been no particular over-production, prices have been profitless. Adjustment of supply to demand is vitally important, but it is not the whole story. There must be a disposition on the part of manufacturers to get a price permitting profitable operation.

This is particularly important in the case of staple cotton fabrics. Somehow or other that division affects all branches of the industry. If print cloths, for example, are sour, most other lines are affected. There's a job here to be done. And it needs doing quickly.

The Editor Presents:

This Month

Picked up at Pinehurst:

This year's convention of the American Cotton Manufacturers' Association, at Pinehurst, lacked some of the excitement which characterized the 1935 meeting at Augusta. That kind of a party doesn't happen every year—fortunately—or we'd all be worn out. The Pinehurst sessions were constructive, and touched the fundamentals facing the industry today. Our report and interpretation of the convention run from pages 70 to 73 inclusive.

Overseers' Corner:

This enlarged edition of a department which has long been a feature of TEXTILE WORLD appears this month commencing on page 107. To facilitate reference to this department, we are now printing it on tinted stock. The evidence is fast accumulating that the enlarged Overseers' Corner has met with general approval from our readers. We invite contributions of news and ideas in order that the feature may become constantly more useful.

Glass Is Knitted:

One of the highlights of the Knitting Arts Exhibition, was the knitting of spun glass. Unannounced, the yarn arrived on tubes on Tuesday morning, and it left that evening in knitted fabric. . . . For this and other news of the exhibition, see page 99.

Care of the Dobby:

Many silk men would spare themselves untold grief if they would follow Mr. Picone's suggestions, on page 81, for dismantling, cleaning, and repairing the dobby.

Braid Tops:

There are special problems in the production of worsted tops from long, coarse, lustrous wools, and men not familiar with this type of work will welcome the practical advice offered on pages 90, 91 and 92.

Cutting Corners:

Is necessary if the finisher is to make a profit in processing rayon French crepes. A practical article outlines the methods which have proved most satisfactory from the standpoint of costs and quality. (Page 84.)

Finding the Answer:

Off and on for six months a curious defect kept cropping up in aniline black prints. The chemist's hair was slowly turning gray, until he finally hit upon the solution of the puzzle. The same method of approach and the same stick-to-it-iveness can well be applied to other baffling problems met with in the finishing plant. (Page 88.)

A Mystery Solved:

For over a year a worsted mill had been troubled with shaded goods. Finally a new super was ushered in, who traced the trouble to its source. How he solved the mystery is told on page 85.

We Fill Another Gap

New developments in textile technology are constantly calling for new information to be written and published concerning them; but, in addition, here and there a weak spot is found in published information on important fundamentals. One of our many jobs, we feel—as editors at the service of the textile industry—is to ferret out these weak spots in textile literature and strengthen them. It is partly because of this belief and the policy which results from it that readers who bind TEXTILE WORLD for permanent reference have been kind enough to declare their volumes the most complete sources of textile information available.

All gaps in textile literature have certainly not been filled as yet, and this month we begin to close one of the most serious and long-existing of them—namely, instructions for calculating cotton-machinery organizations. We and our readers owe Professor Gilbert R. Merrill a debt of gratitude for undertaking this new series, of which the introductory article begins on page 78.

Three S.T.A. Meetings:

For your convenience, three technical discussions of the Southern Textile Association have been boiled down into clear, concise articles which can be read in a few minutes—yet each retains all pertinent facts and figures. These include the South Carolina Spinners Division, the Northern North Carolina-Virginia Division and the Eastern Carolina Division. Similar reports will be carried next month devoted to meetings which take place after this issue goes to press. (Pages 112, 113, and 114.)

■

Next Month

Hot Air:

Despite the fact that textile drying was being considered at the conference held by the U. S. Institute of Textile Research, the discussions were singularly free from hot air. Full details of the meeting in our June issue.

Bent Latches:

A good trouble-shooting article in June will show how and why the latches of knitting needles get bent.

Plush-Warp Beaming:

A simpler, less expensive method will be described and illustrated in the next issue.

Dotted Swiss:

It can be successfully imitated in various ways, as Dr. Thomas Nelson will explain next month.

Sizing and Finishing:

In a continuation of his article in this issue, Mr. La Piana will discuss next month the most up-to-date practice in the use of starch and starch derivatives in sizing and finishing, and will suggest ways in which certain of the present methods can be further improved.

■

Last Month

Editorial on Robert Report:

"You are to be complimented on the Knitting Arts Exhibition Number of the TEXTILE WORLD. It is truly a most attractive and valuable issue. Your comments on the Robert report were carefully noted and impressed me as being very appropriate and directly to the point. If the industry is to continue to live up to the high standards described in that report, a lot of people will have to do some very hard and persistent work. This is merely by way of being realistic and not at all pessimistic. . . ."

"I read your editorial on the Robert report and was so favorably impressed that I asked our secretary whether or not he thought we should send it to the entire Association. This might be unnecessary, however, as I assume they all read the TEXTILE WORLD. . . ."

Editorial on Southern Industry:

"I appreciate very much your editorial on page 78 of the April issue. I think your statements are always pertinent and indicative. . . ."

More on Education Editorial:

"You will be interested to know that I received this morning another copy of your editorial, sent to me by ————. As I told you the other day, I have been particularly pleased by the several ways in which your editorial has stimulated interest in the textile educational program and we have you to thank for your constructive help. These evidences of the way in which TEXTILE WORLD is read also should bring you a certain satisfaction. . . ."

Southern Manufacturers

For code conformance but against Ellenbogen Bill—Murchison makes strong appeal

THE sincere desire of the great majority of southern cotton manufacturers for continued observance of wage and hour standards set in the late NRA codes was clearly demonstrated in both the formal addresses and the lobby conversations at the annual convention of the American Cotton Manufacturers Association at Pinehurst, N. C., May 1 and 2. Equally forcefully was revealed the almost unanimous opposition to the type of commission rule proposed in the Ellenbogen Bill.

Obviously, therefore, these same addresses and conversations indicated widespread recognition of the real problem facing the industry: the method in which continued conformance can be assured without submission to regulation by a commission. Dr. C. T. Murchison, president of the Cotton-Textile Institute, definitely pointed out the first step to be taken in this direction when he said: "It is the solemn duty of this industry when a sound business procedure is at stake for supposedly legal reasons not to evade litigation but to invite it." His meaning was obvious. It is known that certain manufacturers have refrained from signing the Institute's voluntary agreement "on advice of counsel." Dr. Murchison, therefore, was urging executives not to let legal hesitation prevent them from doing their part in preserving "sound business procedure." His courageous approach to this problem met with general acclamation.

The same direction for future action was pointed out by Robert R. West, president of Riverside & Dan River Cotton Mills Co., when he said: "There are some of us who believe that an industry awake to its opportunities and responsibilities can, by voluntary and coherent action, provide and maintain adequate standards and returns. We are prone to under-rate the possible achievements of cooperative action."

A further step toward effective self-government suggested in many of the lobby conversations was the eventual development of some sort of legislation which would permit an industry to enforce its wage and hour standards as in the public interest, without resort, however, to a type of regulation which would take the industry's government out of its own hands. While, of course, there is still a large group which is opposed to any enabling legislation of any sort whatever, expressions at Pinehurst indicated that an increasing number is coming again to a recognition of the need for some sort of support for the industry's self-rule.

The above represents the most important deduction to be drawn from attendance at a convention which had many high-lights. It was nearest to what might be called an "old-time" (meaning pre-1929) convention that we have had since the crack-up. In numbers, in the types of men present, and in the general attitude of good-fellowship was reflected what many described as a return to normal. This was admittedly strange, since the staple groups of the industry were at that very time going through a process of over-production and price degeneration. There was no tendency to deny this fact; on the contrary, admission of it was offered voluntarily. Nevertheless, there seemed to be an under-current of feeling that manufacturers were just about "fed up" with this silly procedure and were getting ready for another spasm of sanity. On many sides, it was indicated that the Pinehurst convention was regarded hopefully as a "turning-point." Strange as this expectation may seem to some observers, the stranger part is that just this sort of thing has happened in the past.

On the personal side, the outstanding development was the demonstration of affection for the retiring president, Thomas A. Webb. At the conclusion of his address, those in attendance arose en masse and applauded loudly and long. Mr. Webb's successor, Donald Comer, holds of course—through his long service to the industry in numberless capacities—a firm hold upon the regard of his fellow-manufacturers.

Still another personal highlight was the demonstration which Secretary W. M. McLaurine received when he presented his annual report. The scope and versatility of his service to the association create new amazement each year as they are revealed at these meetings.

A.C.M.A. on Ellenbogen Bill

WHEREAS, wide publicity has been given to certain reports that important portions of the textile industry favor the so-called Ellenbogen bill, which is designed to impose upon all branches of the industry the straight-jacket of direct Government regulation, and

WHEREAS, these reports apparently emanate for the most part from an organization which is wholly outside the cotton textile industry and whose all embracing title tends to create a false impression of its representativeness,

THEREFORE, BE IT RESOLVED, the American Cotton Manufacturers Association reassert its opposition to this proposed legislation as already expressed at the Congressional Hearing by the bona fide representatives of the cotton textile industry as a whole.

Cotton Industry and the South

THE keynote of the 40th annual convention of the A. C. M. A. was set by Mr. Webb, in his presidential address, as "The Social and Economic Value of the Cotton Textile Industry to the South." He traced the contribution made in both these directions. He did not stop here, however; he went on to pose the real problem facing the industry: unprofitable operation. Presenting figures showing an average loss of over $12,000,000 for the cotton manufacturing industry for each of the eight years from 1926 to 1933, he suggested several ways in

which the public and the politicians can help toward the correction of this situation.

In summing up the material contribution made by the industry to the South, Mr. Webb presented the following statistics:

"Spindles in the United States have been reduced from 36,047,367 to 29,582,594 with only 23,193,734 operating in December, 1935.

"Of the 19½ million spindles in the South, in December, 1935, there were 2¼ million idle.

"Consumption of American cotton in U. S., from 1928-29 to 1934-35 dropped 1,417,000 bales.

"Production of American cotton during the same period dropped 4,020,000 bales. Exports last year dropped approximately 4,000,000 bales.

"And yet world consumption dropped only 350,000 bales."

He then made this significant remark:

"Cotton manufacturing is not destined to remain in any area or to be dominant in any country. England once thought no one could spin and weave except herself. New England thought the South had no manufacturing genius or capital and now that the bulk of cotton manufacturing in the United States is in the South, many think it has come to stay and they treat it in any way. If not treated sanely and sensibly it will move on to some other country or countries."

Indirectly, therefore, he led up to Dr. Murchison's talk entitled "The Next Step Forward."

Establishment of fair labor and other competitive practices by open cooperative action even at the risk of anti-trust litigation was urged on the industry by Dr. Murchison. The alternative, he warned the mill men, is the almost inevitable imposition of such standards "in a different way and from a different direction by a Federal regulating agency."

The speaker pointed out that while the industry had scored a notable achievement in the voluntary maintenance of former code basic standards—maximum hours, minimum wages, machine hour limitation and the ban on child labor—during a period of great adversity, it now remains to be seen whether the ranks will be broken by "the siren temptations of a returning prosperity."

"If such should prove to be the case," he added, "the return of prosperity would be only fragmentary and fleeting and from the aftermath which would follow that experience, the industry would not emerge free and unmanacled."

"Often," declared the Doctor, "I have been disquieted by the thought that certain desirable economic reforms which could be achieved only by concerted action of those engaged in certain activities cannot be realized because of the astonishing reason that they were opposed to the legalistic thinking of twenty-five or fifty years ago. . . .

"The industry which is functioning properly will find it to its own interest to protect its labor, its consumers, and the suppliers of its raw material. Obviously, therefore, a changing economic order requires a legal system which, based upon a minimum of legislation, achieves its application to specific industry practices through court interpretation whose controlling criteria should be the facts of the given situation and the principles of the public good.

"If this theory be correct, then it is the solemn duty of this industry when a sound business procedure is at stake for supposedly legal reasons not to evade litigation but to invite it.

"If concerted action in the form of a definite agreement is essential to the maintenance of fair standards as regards the hours of employment and the number of labor shifts or any form of competitive practice, where the facts of the situation clearly point to the desirability of such standards in the public interest, the industry is remiss in its obligations to its labor, to its stockholders and to the public at large if it permits the thing we call doubtful legality to stand in the way of a vigorous and decisive establishment of those standards.

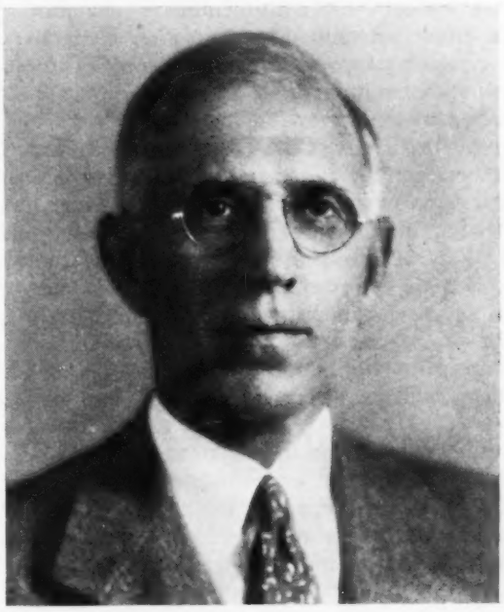
"It is ironical enough that our legal timidity should cause us to be passive in these constructive efforts. But it is even more ironical that our failure to accomplish them will almost to a certainty cause them to be forced upon us in a different way and from a different direction by a Federal regulating agency."

Another feature of the first session of the convention was the address by Charles K. Everett, manager of the Cotton-Textile Institute's New Uses Section.

National Cotton Week's increasing importance and the Department of Agriculture's $1,300,000 allotment for a nation-wide demonstration of the practicability of cotton roads are results which justify wider support of the Institute's promotional program, members of the association were told by Mr. Everett.

Reminding the mill executives that the Institute's pro-

NEW HEAD OF A.C.M.A.



DONALD COMER, who was elected president of the American Cotton Manufacturers Association at the annual meeting, is the son of the late Braxton Bragg Comer, who had held the offices of both Governor of Alabama and United States Senator.

Donald Comer was cadet captain at Bingham Military School and finished just in time to accept a commission as second lieutenant in the 16th Infantry and to take part in the Spanish-American War, as well as in the Philippine insurrection. He served a total of five years, and came out as first lieutenant.

He has been president of Avondale Mills, in Alabama, since the death of his father in 1927. He was formerly southern vice-president of the Cotton-Textile Institute and is at present a director.

He succeeded his father as superintendent of the Methodist Sunday School at Birmingham and is president of the Birmingham Y. M. C. A.

Of the many contributions made by him to the cotton-textile industry, by far the most numerous and most important ones fall into the category of social progress, which has always been the subject nearest to his heart.

motional activities are financed by voluntary subscription, he stated:

"Here we are—the cotton industry—by dint of prodigious effort outstripping every other contender in the race for popular favor. We have succeeded in obtaining the active cooperation of every element that could have any, even remote, interest.

"Our methods have been proved right not only by our achievement but by the fact that competitors and other industries have patterned their efforts after ours. So long as they merely flatter us by imitation we need not worry. But we are in a race for a part of the consumer's dollar—a never-ending Marathon. We can, of course, sit down and relax, rest on our laurels for the moment—so we may think. Be assured, however, that the competitor who, adopting our method today, catches up with us, will set the pace thereafter—and over an uphill course."

The final address at the opening session was by Dr. Edwin W. Kemmerer, of Princeton University, on the subject "Who Will Pay the Bill?"—an analysis of the dangers of the national deficit which we are now creating. Incidentally, Dr. Kemmerer paid a high tribute to the cotton textile industry declaring that no finer or more progressive group exists in American industry.

The address of welcome at the start of the convention was made by Harvey W. Moore, president of the Cotton Manufacturers Association of North Carolina.

Industry and Agriculture

THE interrelation and interdependence of agriculture and industry were stressed by Donald Comer, president of Avondale Mills, Alabama, who presided over the round-table discussion Friday afternoon on "The Common Problems of Industry and Agriculture and How They May Be Solved to Mutual Advantage."

"Too much agriculture and too little industry is the reason why both are in troubled waters in the South today," declared Mr. Comer, after which he quoted from a number of sources to show that over-saturation of either agriculture or industry is injurious to a community.

"If the answer to our problem is a fair mixing of industry with agriculture, if the southern farmer is to have the advantage of a nearby industrial wage, if the South is to overcome the blighting effect of an annual billion dollar trade balance against them, then we, this section, must have some kind of protection for our industry's first beginnings, just as our older industrial centers had from Europe in their first beginning. . . . Trade between States should concern itself with equalizing dollar values, rather than in fighting a free flow of naturally cheaper commodities," he said.

It has been estimated by Cason J. Callaway, continued Mr. Comer, that America is using jute products equivalent to 1,500,000 bales of cotton. Spinning this cotton would put every American mill on double shift full-time operations, and would employ 100,000 more persons. The cotton farmer, the cotton spinner and their friends should not rest until a real protective tariff has been put on jute, he declared. After urging even greater support of National Cotton Week and mentioning the Japanese menace, Mr. Comer concluded his paper with a plea that each mill man try to help some deserving farmer, white or black, in his community to own a home and a piece of land where he could "have one foot on the land and one foot in industry."

The next address was by J. W. Harrelson, president of North Carolina State A. & M. College, Raleigh, who said that many problems of industry and agriculture could be solved by laying more emphasis on scientific research. "The problem of the relation between industry and agriculture," he declared, "demands three things: (1) an analysis to determine the nature and causes of ills in agriculture and industry, (2) recommendations for a program to improve agricultural and industrial relations, and (3) putting the recommendations into operation."

With reference to unemployment, Mr. Harrelson said that this problem primarily is urban, and can be relieved by (1) keeping those people who are born in rural sections from going to industrial centers where there is not an urgent demand for their labor, and by (2) scattering through the country industries where the workers may do sufficient farming to provide much of the food used by their families.

Citing the Ford experiments with soy beans, Mr. Harrelson remarked that "low cost paper from 12c. cotton produced at the rate of one bale to the acre is out of the question. What about paper from 4 to 6c. cotton, produced at the rate of two bales to the acre, or 2 to 4c. cotton produced at the rate of three to four bales to the acre. Such production is impossible, some say, but the research man does not share that opinion." He invited the manufacturers to visit the experiment station and textile laboratory at Raleigh.

Tracing the economic history of the cotton textile industry during the last several years, Robert R. West, president of Riverside & Dan River Cotton Mills, Inc., pointed out that manufacturing margins have declined enormously and that cotton mill stocks have dropped in value. "A candid analysis of the situation which is familiar to all," he emphatically declared, "discloses that the disproportionate decline in mill margins was due to two factors—namely—the ever present potential capacity and inclination of the industry to produce goods in excess of current demand, and—secondly—the ever present opportunity for individual producers to manipulate their wage scales, enabling them, in fact or in hope, to undersell the market. These two factors nullified the opportunity of the southern textile industry to reap the rewards which should have come from gaining ascendancy in the cotton-textile fields.

"It seems to be the part of wisdom to throw every possible safeguard about the wage structure of the industry, not only to insure against irresponsible manipulation, but also provide for a future of increasing income to textile workers.

"The fact that in the year 1936, cotton textile mills have the bulk of their competition coming from equal wage costs areas, cannot be too strongly emphasized. Disorderly wage schedules can result only in disorderly merchandising, unsatisfactory prices and diminishing margins. The individual manufacturer, who, because of fortuitous circumstances surrounding his particular operation has the opportunity to do so, seeks to enhance his competitive position by lowering his wage payments below those prevailing, stimulates confusion in the market and lays the groundwork for the ultimate reduction of all available margins. The industry is too closely integrated for the result to be otherwise. The markets are too sensitive to ignore such influences, and other manufacturers are too dependent upon their outlets to permit them to be seduced away.

"In some quarters it is thought that the only protec-

Thomas H. Webb, retiring president of A.C.M.A.

William M. McLaurine, secretary of A.C.M.A.

tion to wage schedules lies in the authority which wage earners themselves might exercise by means of self-organization. Too often the arbitrary action of employers in regard to their wage rates have given color to this belief. On the other hand, many believe that the desired stability can be achieved best by definite standards set up by law and enforced by civil authority. The plans being advanced to achieve those ends are too well known to need elaboration here. There are some of us who believe that an industry awake to its opportunities and responsibilities can, by voluntary and coherent action, provide and maintain adequate standards and returns. We are prone to under-rate the possible achievements of cooperative action. In spite of the wide variety of products, the great number of individual managements, wide geographical separation and the differences in local considerations and influences, there remains a common denominator. There is room for individual accomplishment, while at the same time giving support to the numerous advantages which can be obtained by contributing to the welfare of the industry as a whole."

David R. Coker, farmer and plant breeder, Hartsville, S. C., in describing the farmer's viewpoint of agricultural-industrial relations, said that the South had suffered more than any other section of the country from the formation of "legislative blocs representing various selfish minority interests," and as a result "in large sections agriculture has not been able to exist on a basis that would permit the building and maintenance of a decent or advancing rural civilization which could consume normal amounts of manufactured goods." He urged the mill men to use their influence in helping raise the standards of rural civilization.

Mr. Coker closed his address with a description of the experimental work which is going on in selective plant breeding at Hartsville, and urged all of those present, and particularly the cotton committee, to pay him a visit and take a look at the thousands of different varieties of cotton which are being raised in an effort to improve the strain of existing varieties.

Reports and Resolutions

AT the Saturday morning business meeting, the following reports were submitted: Charles A. Cannon, Concord, N. C., policy committee; Carl R. Cunningham, Atlanta, Ga., traffic committee (Captain Ellison A. Smyth, Flat Rock, N. C., chairman); A. K. Winget, Albemarle, N. C., cotton committee; Stuart W. Cramer, Charlotte, N. C., Textile Foundation and National Industrial Conference Board; George P. Ray, New York, General Arbitration Council; Harvey W. Moore, Charlotte, N. C., publicity; Hon. O. Max Gardner, counsel, Washington, D. C., national legislation; W. N. Banks, nominations.

Donald Comer, president of Avondale Mills, Birmingham, Ala., was elected president. R. E. Henry, president of Dunean Mills, Greenville, S. C., was made first vice-president. John H. Cheatham, president and treasurer of Georgia-Kinkaid Mills and president of the Cotton Manufacturers Association of Georgia, became second vice-president. W. M. McLaurine was reelected secretary. Directors reelected included M. P. Orr, of Anderson, S. C.; Herman Cone, of Greensboro, N. C., and Robert R. West, of Danville, Va. New directors are James Chapman, Jr., of Spartanburg, S. C., and Landon Thomas, of Augusta, Ga.

Mr. Comer's first move as president of the A. C. M. A. was to send letters to the mills outlining plans for forming farmer-industry committees in each Southern State in order to work to solve the common problems. He urged mills to cooperate with farmers in helping them to appreciate the value of better seed and staple, and suggested assisting farmers' market by premium for staple.

The enormous dining rooms of the Carolina were filled to overflowing at the annual banquet held Friday evening. Hon. Charles M. Newcomb, of Cleveland, Ohio, was the speaker. Honor guests included Dr. Claudius T. Murchison, head of the Cotton-Textile Institute, Hon. O. Max Gardner, counsel for the Cotton-Textile Institute, W. R. Bell, president of the Association of Cotton-Textile Merchants of New York, Harvey W. Moore, president of the Cotton Manufacturers Association of North Carolina, S. Marshall Beattie, president of the Cotton Manufacturers Association of South Carolina, and John H. Cheatham, president of the Cotton Manufacturers Association of Georgia. The retiring president was presented with a medal by A. M. Dixon, of Gastonia, N. C.

The motion picture, "Destiny of Dixie," made at Avondale Mills, was shown Friday afternoon.

Resolutions were adopted by the association urging that:

1. The Department of Agriculture and Congress take the necessary steps for cotton to be sold net weight so as to encourage the use of cotton bagging.
2. The Cotton-Textile Institute be commended for its accomplishments in demonstrating the practical value of the use of cotton in road building.
3. The Japanese import situation again be stressed to President Roosevelt in the hope that measures will be taken to protect American industry.
4. The president of the association appoint a committee for "observing and securing conformance" to present operating standards in the industry.
5. Support be given the suggestion that a committee study trade conditions in foreign countries.
6. Opposition to the Ellenbogen bill be reasserted.
7. The proposed revenue bill designed to recapture so-called "windfall taxes," which if passed would be greatly unjust and jeopardize the financial solvency of many mills, be earnestly opposed.
8. Cooperation be given every way possible to the cotton producer.
9. Present methods of trading on New York Cotton Exchange be not changed by legislative action because needed flexibility would be replaced by statutory rigidity.

All-Knitters Assembly...

Philadelphia show and conventions attract hosiery, underwear and outerwear manufacturers

THE tendency toward cooperation between the branches of the knitting industry, which becomes more pronounced each year, was again manifest at the 1936 conclave of knitters in Philadelphia last month. Truly speaking that event was as nearly an all-knitters assembly as the industry has yet known. In addition to an exceptionally good attendance of hosiery and underwear manufacturers, there was a substantial representation of outerwear men, which may be credited to the fact that no outerwear show is held this year.

A strong similarity of problems marked the annual conventions of the hosiery and underwear associations. Three identical thoughts covered by speeches and resolutions at these meetings were: (1) dissatisfaction with the present "profitless prosperity" and a strong desire to put both branches on an income-earning basis; (2) emphasis on the point that cooperation via trade agreements, etc., is the only way to meet the problem of increased legislative interference; (3) all officers re-elected unanimously as a vote of confidence in their ability to cope with the present crisis.

HOSIERY

A DOMINANT FEATURE of the 32nd annual convention of the National Association of Hosiery Manufacturers, held April 22, at Commercial Museum, was the strong resentment against the prevailing practice of building volume without profit. It was notable that frequently during the crowded day, other important issues would be sidetracked in revived discussion of the profits question. As a climax, the convention unanimously endorsed a plan for an exhaustive study of the industry, as proposed by Earl Constantine, managing director. The study is to be quite sweeping in scope; one year will be allowed for the project; it will cover every division of hosiery manufacture and distribution. The aim is to find out the causes of the present unprofitable situation and make recommendations for their elimination.

The plan evoked strong endorsements both from William H. Gosch, president of the association, who presided, and from John Wyckoff Mettler, president of Interwoven Mills, Inc., former president of the association and long a leader in hosiery affairs. Mr. Mettler made a vigorous speech from the floor, commending the proposed study as "our most important need" and warmly praising the record of Mr. Constantine, who, Mr. Mettler said, "has shown us that he has the push and punch to carry this project through to a successful conclusion."

The convention opened with a brief talk by Mr. Gosch, who had arrived the day previous from a European tour; Mr. Gosch limited his remarks to comments on European conditions generally, and the hosiery industry in particular. Following Mr. Gosch, Ernest Blood, president, John Blood & Co., made his report as treasurer. He stated that assets of the association had increased $16,486.17 as at the end of 1935, but pointed out that since the association's year now ends May 31, part of this sum would go in current disbursements.

Important progress in measuring the evenness of raw silk was a feature of the report read by T. H. Muller, of Laros Textiles Co., on behalf of the Raw Silk Committee of the association. The report announced that "adoption of the 9-meter test has taken the measurement of evenness of raw silk out of the uncertainties of visual inspection and into the relative certainties of mechanical inspection."

Mr. Constantine presented the proposal for an industry-wide study as part of his annual report. His address

W. H. Gosch, reelected president of hosiery association

Ralph M. Jones, reelected head of Underwear Institute

was a highlight of the convention. In opening he traced the history of association activities through NRA dissolution and thereafter and described the efforts made to have the industry adopt a voluntary code. The remainder of his report had three chief divisions: (a) the growing problem of Japanese competition; (b) the progress made in development and acceptance of hosiery standards; and (c) the current trade agreement now being considered by the seamless branch which eventually may have trade-wide acceptance.

He quoted the following table on hosiery imports from Japan, 1931-1935:

Year	*Dozen of Pairs*	*Value*	*Value per dozen pair*
1931	22,319	$7,833	35c.
1932	30,487	9,462	30c.
1933	88,568	26,439	30c.
1934	270,813	102,247	38c.
1935	644,641	225,055	35c.

Adding that, in January and February, 1936, Japanese hosiery imports were on the basis of 100,000 dozen monthly, the managing director stated that the association will ask that the duties on these imports be increased to the limit possible under existing law.

Mr. Constantine drew an encouraging picture of work done toward developing standards; he pointed out that a

growing number of manufacturers are accepting the inspection standards, and predicted for the raw silk color standards "a wide field of utility."

Especial interest attached to his reference to the seamless branch; this division, he reported, "has clearly indicated" its desire to safeguard labor standards. The group is voting on an agreement similar to the previously rejected voluntary agreement. The agreement becomes effective when 85% of the industry has signed; of this Mr. Constantine stated that 63% already have promised to sign; the agreement is expected to go into effect May 15.

Following adjournment of the morning session, the directors convened and re-elected all officers. The officers, in addition to Mr. Gosch, are: Vice-presidents, Austin H. Carr, Durham (N. C.) Hosiery Mills, Inc., and Roy E. Tilles, Gotham Silk Hosiery Co., New York; treasurer, Ernest Blood, of John Blood & Co., Philadelphia; and managing director, Earl Constantine.

Lively comment which ranged from the humorous to the critical lent interest to the general industry session held in the afternoon. Two optimistic phases brightened the spirits of the manufacturers at adjournment: First, confidence that the broad survey just authorized would pave the way toward increased earnings; and second, a prediction voiced by Mr. Mettler that though politics may upset business for a few months, the hosiery industry is due for good times in 1937 and 1938.

UNDERWEAR

TRADE-WIDE ADOPTION of a voluntary code to offset further government regulation which "is certainly coming"; insistence upon a profit margin in all sales; and the substitution of industrial relations viewpoint for the employer-employee viewpoint—these three points were the highlights of the annual convention of the Underwear Institute, held at the Commercial Museum, April 23. The day's program had three divisions—morning, luncheon and afternoon sessions.

At the morning session interest centered on the reports of the president, managing director and treasurer. Ralph M. Jones, president, reviewed the year's developments, including the dissolution of the NRA and the subsequent efforts to obtain acceptance of a voluntary code. He explained the Institute's reasons for not actively participating in the Berry conferences and emphasized the value and importance of the Institute's volunteer code plan, now awaiting the signatures of the manufacturers. Three recommendations concluded Mr. Jones' report: (a) that firms sell only at profitable prices, utilizing Institute services to spike false price-cut rumors; (b) that the various groups meet more frequently and consider their problems frankly, to build up confidence among the membership; (c) that sufficient mills sign the voluntary code to make it effective, thus stabilizing the market "and protecting our work people from exploitation."

The annual report of Roy A. Cheney, managing director, had six main features: First, most underwear mills today maintain NRA wage and hours standards, but adoption of the code is essential to protect industry against new government regulation; second, 1935 underwear output was the highest since 1927 and turnover rose 10% over 1934; third, members should give closer study to statistics supplied them by the Institute, especially as these figures are helpful in disproving misstatements made incident to legislative discussions; fourth, the pronounced increase in polo shirt output by underwear mills, now is being carefully studied by the Institute for any signs of a sudden slump; five, the completed report on depreciation practices and rates is now before the industry; sixth, a plan is being developed to give mills insurance protection on compensation, public liability and other liabilities.

FOR DETAILS OF KNITTING SHOW—

SEE PAGE 89. Our technical evaluation of the Knitting Arts Exhibition, held in Philadelphia, April 20 to 24, appears in the special insert beginning on page 89. This survey is broken down by class of machine or product for your convenience.

Mr. Cheney concluded his address with the prediction that after November "there will be a drive to regulate industry and business to a degree we have not dreamed of," adding that survival of underwear manufacturers in this fight will depend largely on the degree of support given the Institute and its officers.

Other features of the morning session were: the report of Oscar W. Gridley, treasurer, which showed a surplus of $10,733.33; the report and recommendations of the executive committee; and the election of officers. The election resulted in the continuance of the present staff with the addition of a second vice-president, to which post Walter W. Moyer, of Moyer Knitting Co., was elected. The officers are: Ralph M. Jones, president; Benjamin C. Russell and Mr. Moyer, vice-presidents; Mr. Gridley, treasurer; Roy A. Cheney, managing director; Earle E. West, assistant secretary; Francis E. Simmons, statistics director.

Among the executive committee recommendations approved were the following: that a committee be appointed to cooperate with the Laundryowners National Association in developing a plan to reduce laundry shrinkage; that the managing director investigate use of pre-shrunk labels and report to executive committee; that a plan be developed to enforce labeling of second quality goods; that combed yarn labels be used only on merchandise in which all cotton yarn used is combed.

The final half-hour of the morning session was devoted to a vigorous talk on merchandising by A. R. Kneibler, of Coopers, Inc., Kenosha, Wis. The key point stressed by Mr. Kneibler was that knitters should regard merchandising as no less important than manufacturing, and that the industry give more minute study to retailer and consumer viewpoints.

Some new thoughts on labor relations were offered by John Strain, labor counselor of the Institute, speaking at the luncheon. He urged abandonment of the old idea that the employer need consider only himself, and said this philosophy was responsible for the gains made by labor. Labor problems should be viewed broadly as industrial problems, not narrowly as employer-employee problems, he insisted. Three forecasts were made by the speaker: (1) government participation in industry will increase; (2) stockholders will become more familiar with their companies' activities, and (3) labor shall be given representation on the boards of directors of all companies.

The afternoon session was open house, with discussion covering a wide range of topics, the chief subject being the aftermaths of the processing tax. Mr. Cheney explained the more complicated aspects of the tax refund situation; he urged that members file claims for tax refunds at once.

Recovering From Tornado And Flood

FINE strides at reconstruction are being made in the business and industrial sections of Gainesville, Ga., that were struck by a terrific tornado early on the morning of April 6, doing damage of many millions and taking a death toll estimated at 185 with a great many injured. Fire added to the destruction.

Pacolet Mfg. Co., New Holland, Ga., has work under way to repair damage done by recent cyclone to mill and village. The program involves expenditure of $5,000. Owen-Osborne Hosiery Mills, Gainesville, damaged in same storm, have also awarded contracts for repairs.

Long after the flood had ceased to be a matter of newspaper headlines, the textile industry in New England still struggled to clean up the mess. Even at the first of this month there were departments in some of the mills that had not been able to start up and these were outside of the places where structural damage was done. The fine silt deposited by the water has caused the most trouble by finding its way into all the parts of machinery. In one case, for example, pick counters when opened up were found to be packed as tightly with silt as though the job had been done deliberately. One overseer gloomily remarked that he expected to be cleaning equipment for the next five years as the dirt worked itself out.

On the brighter side is the acclaim which the industry received on all sides for the aggressive manner in which it jumped to the job of cleaning up and rebuilding as soon as the water even started to recede.

National officials of the American Red Cross are reported to have said that Lowell (Mass.) Textile Institute offered the best-organized and best-equipped relief station in the country during the recent floods. Under the supervision of James H. Kennedy, Jr., an instructor, 481 refugees were housed in the Institute buildings. Thousands more received food, clothing and medical attention, and from a radio station in Southwick Hall were broadcast official National Guard messages, railroad instructions, and flood reports.

Century-Old Selling Agencies Merge

TWO cotton goods selling agencies in the Worth Street market, whose roots go back about a century, have united forces. Bliss Fabyan & Co., Inc. and Haywood, Mackay & Valentine, Inc., have merged. Thomas D. Mackay and T. Holt Haywood will become officers of Bliss Fabyan & Co., Inc. Mr. Mackay will continue to supervise the merchandising for the mills who have been associated with Haywood, Mackay & Valentine, Inc., and the identity and personnel will be retained. The business will be conducted as the Haywood, Mackay Department of Bliss Fabyan & Co., Inc. Mr. Haywood will represent the company at the southern headquarters at Winston-Salem, N. C.

Bliss Fabyan & Co., Inc., succeeded to partnerships begun in Boston in 1832. Haywood, Mackay & Valentine, Inc., were successors to the textile business build up by Frederick Vietor and Achelis, which firm was founded in 1842.

This union combines under one organization, with the guidance of merchandising executives long associated with textile distribution, a group of non-competitive mills capable of producing practically everything in the field of cotton and rayon fabrics.

The Commercial Factors Corp. will continue the factoring service for the Haywood, Mackay Department and the mills it represents. The Haywood, Mackay organization will move into the Bliss Fabyan & Co. offices at 32 Thomas St., New York.

Attitude Sampled on Ellenbogen Bill

IN A letter to President Roosevelt, dated April 17, Peter Van Horn, president of the National Federation of Textiles, Inc., stated that the directors of the Federation had authorized full support of the Ellenbogen Textile Control Bill. Principal reasons given were: first, because the industry had found it impossible since the discontinuance of codes to effectively control unfair competition; and second, because of the desire of the membership to "offer their small bit of constructive assistance in reducing unemployment thereby increasing purchasing power and lowering taxes."

In order to sample the attitude of this division of the textile industry on this bill, TEXTILE WORLD sent a wire to a number of representative manufacturers asking whether or not they were in favor or opposed. Those so approached included of course both members and directors of the Federation.

The returns, received and held in confidence, showed 37½% for the bill, 37½% against the bill, and 25% on the fence. This is not given as a positive mathematical reflection of opinion, but rather as indication of approximate division of attitude.

Here are sample answers from those in approval: "I approve bill in question with certain modifications" . . . . "Have endorsed said bill as a member of board of National Federation of Textiles, Inc." . . . . "Ellenbogen Textile Control Bill has many good features and with modifications would prove of great benefit conditional upon inclusion of all textile branches. It is by no means ideal solution to chaotic condition now maintaining but at least would put a stop to increasing of working hours, wide spread cutting of wages, and three shift operations."

Sample replies of the opposition were: "Unalterably opposed to Ellenbogen Bill" . . . . "I believe Ellenbogen Control Bill entirely impractical and unworkable. I definitely favor a Federal bill providing for minimum wage, maximum man-hours, control of child labor, and nothing else" . . . . "The Ellenbogen Bill is not a practical possibility."

A sample of the 50-50 type of answer is: "Ellenbogen Textile Control Bill may contain some desirable features if the orders of the National Textile Commission can be enforced. In that respect experience of the NRA and of many Court decisions on other New Deal legislation is not encouraging. Detail administration does not appeal as being practical."

A lengthy report on the Ellenbogen Bill was submitted May 5 by Representative Keller, chairman of the

Interior of Bliss Fabyan & Co.'s New York office, showing decorative use of photo-murals of textile processes. This century-old firm has merged with Hayward, Mackay & Valentine, Inc., which will operate as a department.

House Labor sub-committee which drafted the bill, to the chairman of the main committee. The bill had been previously reported out of committee but introduction on the floor had been held up pending this report from Mr. Keller.

Representative Hartley of New Jersey submitted a minority report declaring that "only the most pressing need could justify even the consideration of a permanent plan which involves such a fundamental departure," and that absolutely no need for the bill was shown in the testimony taken at the hearings. The important branches of the textile industry, he maintained, have successfully maintained their code standards.

Foundation Finances Distribution Study

ADDITIONAL avenues of textile research are to be explored as a result of recent appropriations made available by the Textile Foundation.

A grant has been made for financing a study on "Production and Distribution Organization in the Textile Industry." This study will be conducted under the advisory supervision of the Committee on Economic Research of the U. S. Institute for Textile Research which recommended the subject to the Foundation. The committee will appoint a research agency for the active conduct of the work.

This announcement is of particular interest in that the Foundation in the past has financed several investigations into distribution policies and methods in specific branches of the textile industry, and is now sponsoring an over-all survey of importance to the industry as a whole. The project has the endorsement and cooperation of the presidents of four of the major textile associations who will also act in an advisory capacity during the conduct of the study.

This trend study will involve, particularly, investigation into the factors affecting the success or failure of various types of organization which have undertaken, at any important point, to bridge the gap between mill and consumer. It will be based, not upon theoretical considerations, but upon the actual experience of a number of companies—both within and without the textile industry.

There are many important examples of such developments: mills which manufacture garments, garment manufacturers who have bought mills or who control retail stores, wholesalers who convert their own goods, mills or converters who have worked out close cooperative arrangements with wholesale or retail distributors, etc., etc. It is realized that no categorical conclusion can be reached in such a study; its main purpose is to indicate under what conditions such arrangements seem to have been successful—and, similarly, what conditions seem to have contributed to their failure. These facts, it is felt, will be of great help to individual manufacturers as guidance in their own determination of future policies.

Reverse English . . . or Man Bites Dog

CARL STOHN, INC., with headquarters at Hyde Park, Mass., is probably the first concern in the textile industry to close a good-sized unit in the South and move it to New England. On April 24 the company purchased the old Taber Mill in Taunton, Mass., and in June will move up the 100 jacquard looms and auxiliary equipment that are now located in the plant at Charlotte, N. C. According to A. C. Stohn, president, actual operation will probably start in mid-summer, and about 300 will be employed in the weaving and finishing of corset cloth and similar fabrics. Availability of skilled labor and a good water supply are listed among the advantages of the Taunton location.

The Taber mill contains about 198,000 sq.ft. of floor space and was first owned by the Corr Mfg. Co. When the latter company liquidated in 1926, the plant was taken over by Taber Mill, Inc., New Bedford. Operations ceased several years ago and the city of Taunton took the property in settlement of taxes. A special act of the State legislature was necessary to solve the legal questions involved in the sale of the property to Carl Stohn, Inc. It is understood that the purchase price was $10,000 and that the figure was made low to attract an industry that would give employment.

Textile School Heads Meet at Atlanta

THE deans of the textile schools of the country held their semi-annual meeting in Atlanta, Ga., April 16 and 17. These meetings are held under the auspices of The Textile Foundation in conjunction with the Foundation study of textile educational methods and needs. While in Atlanta, the school heads were the guests of the A. French Textile School of Georgia School of Technology. The session was concluded by visiting the textile department of the Alabama Polytechnic Institute at Auburn, Ala.

In the business meeting, the school heads considered the furtherance of their plans, in conjunction with the Foundation, for the development of new teaching materials. Work on this program is progressing and it is hoped to have some of the new texts ready for the fall term. Frederick M. Feiker, who conducted the survey of textile education, and Edward T. Pickard, secretary of the Foundation, were in charge of the meeting. Franklin W. Hobbs, chairman of the board of the Foundation, was also present. Others who participated in the session, in addition to the school deans themselves, included Luther H. Hodges, manager of the plants of Marshall Field & Co.; Cherry L. Emerson, president of Robert & Co., Inc.; A. H. Williams, of Wharton School of Finance & Commerce; Dr. M. L. Brittain, president of the Georgia School of Technology. After the session in Atlanta, the textile school men were the guests of Fuller E. Callaway, Jr., at La Grange, Ga., and also visited the Fairfax Mills of the West Point (Ga.) Mfg. Co.

"An Income Tax On a Deficit"

THE windfall tax provisions of the pending revenue bill were characterized as "an income tax on a deficit" by G. H. Dorr, chairman of the board of the Cotton-Textile Institute, at a Senate Finance Committee hearing May 5. The measure, which had passed the House, was still in the hands of the finance committee as this issue went to press. Any attempt to indicate probable form of the tax bill which will finally be passed would be pure guesswork at this writing.

"The bill singles out particular transactions interspersed with other transactions throughout the course of a tax year," said Mr. Dorr; "attempts to figure out whether or not there has been net income from those particular transactions considered by themselves and makes them subject to assessment for tax, even though, taking the transactions for the year as a whole the mill sustained an actual loss. The result will be that if the bill remains in its present form there will undoubtedly be cases where a mill has sustained a deficit for a year and will be subject to this tax."

The same provisions were attacked by Dr. Claudius T. Murchison, president of the Institute, who stated that "the yardstick of equity fails to reveal any measurable windfall" accruing to the cotton textile industry. If there had been any windfall, he pointed out, it was a "windfall only in a technical sense." The industry, he stated, has suffered a net loss in excess of $100,000,000 during the last decade. "In terms of its benevolence in providing the American people with essential goods at prices below the actual cost of production," he said, "the textile industry takes rank as the leading charitable institution of all time."

Scott Russell, of Macon, Ga., also representing the Institute, stated that the windfall tax was administratively impossible under the proposed method.

How to calculate drafts, doublings, sizes, speeds, wastes, spindles, and other details of

COTTON ORGANIZATIONS

By Gilbert R. Merrill
Lowell Textile Institute, Lowell, Mass.

◆ *"This discussion is offered as filling a gap in the literature of the industry which should not have remained open so long." That statement by Professor Merrill we heartily endorse, and we do not hesitate to add that we believe our readers will find the series of articles which begins herewith one of the most practical and useful treatises on textile fundamentals ever written.*

This introductory article offers outlines of the two waste spinning systems, a discussion of the number of roving operations required for the regular spinning of various yarns, and two interesting tables. The next article, to appear in June, will discuss at some length twist contraction in single and ply yarns, the effect of such contraction on yarn counts, and calculations for waste losses—no mean subjects in themselves. The calculation of machinery organizations proper will shortly thereafter be carefully outlined, with numerous examples based on actual mill practice.

THE term "organization," as used in this discussion, includes the planning of the drafts, doublings, wastes, and sizes to use for the production of certain counts of cotton yarns. In addition, it includes the determination of the amount of machinery required to carry out the production of the sizes planned in the proper ratio, so that the product of one operation is sufficient to supply the requirements of the next operation. This involves the selection of the proper speeds, twists, and machine details to be consistent with the quality of the yarn to be spun.

No One-and-Only Solution

At the outset, it must be clear to anyone at all familiar with the cotton industry that there is no one-and-only perfect solution for a problem of this type. Starting with the same stock, to make the same yarn, two mills will seldom use exactly the same organization; and the yarns that they make may be so nearly alike that there is no choice between them. Yet, after averaging the organizations of a number of mills making comparable yarns, it is surprising how nearly the various organizations approach one another.

So, with this acknowledgment to the differences which some mill men will express, this discussion is offered as filling a gap in the literature of the industry which should not have remained open so long.

In considering this subject, there is a need for a good general, if not even specific, knowledge of common mill conditions. Sometimes, however, a knowledge of mill practice seems to confuse this subject more than to enlighten it, because mills making the same yarns and fabrics will have such different ways of solving their problems. These conditions serve to illustrate that cotton manufacturing is still an art and that it has not yet reached the stage of being strictly a science.

There are three systems in use for the manufacture of cotton yarns. They may be called by the following names:

1. Regular cotton system.
2. Coiler or double-carding waste system.
3. Condenser or woolen-principle waste system.

The regular cotton system is that commonly used. It represents the great bulk of cotton manufacture and utilizes the following operations:

Opening, 1 to 5 operations.
Picking, 1, 2, or 3 operations.
Carding.
Sliver lapping.
Ribbon lapping.
Combing.
Drawing, 1 or 2 operations.
Roving, 1, 2, 3, or 4 operations.
Spinning.

No further discussion will be given in this connection, as the assumption is that sufficient literature is available for those not already conversant with the system. However, there is much less published information to be had on the two waste systems; and in this introduction to our subject it seems advisable to review the fundamentals of these systems briefly, as follows:

The coiler or double-carding waste system is one used for short staples and wastes. It produces a yarn having the general characteristics of those produced by the regular cotton system but lacking in uniformity and strength. In this system the following operations are used:

Opening, 1 to 5 operations.
Picking, 1 or 2 operations.
Breaker Carding.
Doubling.
Finisher Carding.
Roving, 1 or 2 operations.
Spinning.

The conspicuous features of this system are double carding and the omission of drawing. Both cards are of the revolving-flat type equipped with fancy rolls to prevent too rapid filling of the cylinders. The breaker card is usually equipped with a side delivery, in connection with which a leather apron runs across at the front of the doffer to carry the web.

The doubler, or derby doubler, may be arranged to wind 40, 80, or 96 breaker card slivers into a lap with no draft. The 40 end laps are half the width of the finisher card, while the others are the full width of it.

The finisher card is fed one or two full-width laps or two or four of the narrow laps. This means that 80, 96, 160, or 192 breaker card slivers are fed the finisher card. The doffer web is separated into two, four, six, or eight sections, each of which is run through a trumpet and to a separate coiler and can.

The finisher-card slivers are fed to the slubber; and for the coarser yarns, the slubber roving goes directly to the spinning frame. The finer yarns are made from roving produced on an intermediate frame.

The condenser or woolen-principle waste system is so called because it is very similar to the regular woolen-yarn system, producing a yarn in which there is no regu-

lar fiber arrangement and from which the fibers project in every imaginable direction. This type of yarn is particularly suited to fabrics requiring napping. The operations involved in this system are as follows:

Opening, 1 to 5 operations.
Picking, 1 or 2 operations.
Double carding in tandem (roller cards).
Spinning.

Where colored work is run on this system, which is quite often, the stock is opened, dyed, dried, and baled. After this it is put through the operations listed above.

In this system the carding is done on the roller-and-clearer type of cards. The first card delivers its end as a single sliver, which is automatically carried to the feed apron of the second or finisher card. The latter has an automatic feed arrangement to lay the breaker sliver diagonally across its feed apron. The finisher-card web is split up into a series of very narrow ribbons; and these are passed between two rub aprons, which roll the ribbons into several rovings. The rovings are wound side by side on double-headed rolls, called jack spools. These spools are placed in the creel of a special type of ring spinning frame. The spools rest on and are turned by a drum, which causes them to deliver the required yardage. In many of these frames, the ends merely pass between two rolls and down to the traveler and bobbin. This is no more than a twister. A strand of fine cotton yarn may be run along with this yarn to give the final strand a better strength. The resulting yarn is called a "core yarn."

Another type of spinning frame for this system has two pairs of rolls about 15 in. apart. These can be arranged to give a draft up to 2.

Regular Cotton System

Drafts and Sizes—There are a series of items that should be taken into consideration before starting out on a discussion of a mill organization for the regular cotton system. These include the details regarding common practice in the various operations. Table I gives a summary which can be used as a general background.

Roving Operations—Another feature that needs some consideration is the number of roving operations commonly used for various counts of yarn. These will vary according to the quality of the yarn to be made. Likely conditions are shown in the following paragraphs, which include some of the more common uses for the yarns mentioned. These data are based on the older style organization, where no long draft is used.

One operation of roving permits making yarns up to 10s for the filling of napped goods, candle and lamp wicking, coarse denims, and, in plies, for ducks (including wide, narrow, belting, and hose ducks).

Two operations permit making yarns up to 20s for ducks, canvas, drills, baggings, and coarse sheetings.

Three operations of roving permit making yarns from 15s to 40s for weaving, suitable for medium sheetings, print cloths, cheese cloths, drills, and twills. For the better grades of work, the range may be from 15s to 30s. This is especially true for hosiery and underwear yarns.

Four operations of roving permit making yarns from 40s to 150s for voiles, lawns, organdies, piqués, shirtings, fine sateens, velveteens, and airplane and balloon cloths. The lower end of the range may drop as lows as 30s for some high-grade work, especially knitting yarns.

Five operations of roving permit spinning the finest yarns. This arrangement is rarely used, and then it is for yarns from 150s up.

Long-draft roving is now being introduced. The frames are often spoken of as "long-draft slubbers," because they are fed from cans of sliver, but actually these machines are generally of the sizes commonly called "intermediates." With one operation of roving, these long-draft frames will produce a roving up to 6-hank, with about 4-hank as a very common size. Notice that this means that one operation produces fine-roving sizes. The amount of drafting accomplished by these machines is not so great as might at first be supposed, however, because no doubling of ends is involved. With standard drafting in spinning, these single-process rovings may easily be spun to 30s and perhaps to 36s, while with long-draft spinning equipment the counts might run as high as 50s. However, as long-draft roving is still new, it is impossible to offer standards.

Combing—Yarns finer than 40s are usually of combed cotton, which means that sliver lappers, ribbon lappers, and combs follow the cards. It will be understood that in the case of special yarns combing is used for very coarse numbers; therefore the question as to whether a yarn is combed is not entirely dependent on count.

Cotton Staple—Another factor of importance, having a connection with the counts spun, is the staple of the cotton necessary to produce a commercially satisfactory yarn. Here again there is a chance for variations, but Table II represents usual commercial practice.

Table I. Range of Drafts and Sizes

Operation	Drafts		Sizes	
	Range	Common	Range	Common
Breaker Picker	1.5–2.5	2	14–18	16
Finisher Picker	3–5	4	12–16	13
Single-Process Picker	2–4	3	12–16	13
Card	80–120	100	40–80	55
Sliver Lapper	1.5–2.5	2	400–800	500
Ribbon Lapper	4–6	4	400–800	500
Comb	40–80	60	50–65	60
Drawing, 4-Roll	5–7	6	40–70	55
" 5-Roll	16–18	16	40–70	55
Slubber, Regular	3–5	4	.40–.70	.50
" Long-Draft				
Intermediate, Regular	4–6	5	1.00– 2.00	1.30
" Long-Draft	12–40	24	up to 6.00	4.00
Fine, Regular	5–7	6	2.50– 6.50	4.00
Jack, Regular	6–9	7	8.00–15.00	10.00
Spinning, Regular, Single-Rov.	7–9	8		
" " Double-Rov.	9–12	10	10.00–120	20.00
" Long-Draft	14–20	16		

Table II. Counts Spun from Various Staples

Staple	Carded		Combed	
	Warp	Filling	Warp	Filling
Up to 1"	Up to 28	Up to 36		
Up to 1⅛	20–40	30–50	Up to 30	Up to 40
1⅛–¼	30–50	40–60	30–60	40–70
1¼–⅜	50–75	60–80	60–70	70–100
1⅜–½	75–100	80–120	70–80	100–120
1½–⅝			80–100	120–150
1⅝–¾			100–180	150–180
1¾–up			150–300	150–300

Textile Personalities

WILLIAM J. Vereen's official connection with the industry is as vice-president of Moultrie (Ga.) Cotton Mills and president of Riverside Mfg. Co. His unofficial connection is as ambassador extraordinary to Washington, D. C. In fact, on the word of no less an authority than W. D. Anderson, Bill Vereen must be counted as one of the heroes of the Battle of Washington during the formative AAA-NRA days.

Go to Moultrie and you will see the Vereen stamp on practically every phase of the town's activities. Bill's father — William C. Vereen — went there in 1890 from South Carolina—and proceeded to take an active part in the building up of Moultrie's industries, banks, hotel, and in providing markets for farm products. Colquitt County, of which Moultrie is the trading center, has not had a vacant farm for 15 years. The senior Vereen is still active.

The junior has been president of the Cotton Manufacturers Association of Georgia, president of the American Cotton Manufacturers Association, and active in the Cotton-Textile Institute. In fact, it was during his term as president of the A.C.M.A. that the Institute was launched at the now historic meeting in Atlanta.

In spite of these and other accomplishments, however, it is necessary to come back to Bill's reputation as a diplomat. Ask Col. Anderson; he knows.

THE story of Col. Charles F. H. Johnson, president of Botany Worsted Mills, has three main chapters—pre-war, the war, and the Botany Worsted Mills. Pre-war covers a rapid transit from telegraph work to real estate, culminating in his election as president of the Passaic, N. J., Board of Trade. War covered a hectic period as chairman of Liberty Loan Drives, followed by a swift run-up in the Army Air Service from Major to Lieutenant Colonel then to Colonel. (He continues as Colonel in the Reserves.) The Botany Worsted period is a record of tumultuous years, as a climax to which, in 1929 he was elected president of the company. In 1921 President Harding named him representative of the Alien Property Custodian at Botany Mills in Passaic and that was the beginning. He became vice-president of the Botany Worsted Mills in 1924, having been largely instrumental in returning the mills to the Stoehr family; he resigned in 1927 due to differences over policy and was recalled the following year.

In personality Col. Johnson is dynamic and decisive. And we have it from himself that his "chief hobby is Botany Worsted Mills." He is an enthusiastic merchandiser and has been a leading figure in various important cooperative promotional movements that have been conducted by the wool industry.

THE fact that H. H. Willis, dean of Clemson College, is chairman of the special committee preparing teaching materials on textile technology, is not entirely accidental. He has long been—on his own say-so—"a bug on" the development of such texts. In fact the writer of this sketch recalls that in 1931 Mr. Willis consulted him on this very subject.

Born in 1891, the future educator went into the mill at the tender age of nine and progressed through a series of experiences as sweeper, doffer, etc. He learned for nothing—and then doffed many days (11 or 12 hours a day) for as little as 25c. His mill experience covered nine years.

But, rather late, he caught up on his education and graduated from Clemson in 1917. After war-time experience as paying officer at Camp Upton, he returned to the college as an assistant. Later he was connected with the State Department of Education in North Carolina and then with the U. S. Dept. of Agriculture as cotton specialist, returning to Clemson in 1924 to take charge of the Government's spinning work. He became dean in 1927.

Golf is a sort of hobby—although he admits he was runner-up for booby prize at a recent S. T. A. meeting at Myrtle Beach. More secure is his reputation as the sponsor of a textile laboratory; that at Clemson is one of the best in the country.

CARE OF THE DOBBY

By John Picone

Dismantling, washing, and replacing worn parts will save time and trouble

THE writer has often asked why the dobby, which is very decidedly one of the vital parts of the loom, is so often neglected by the mill man. Year after year we find him rushing throughout his mill looking for a loom that has a dobby in sufficiently good condition to take a new pattern. Also we see the fixer returning continually to a loom which is producing defective goods. Many a fabric has been ruined by failure to keep a dobby in good condition.

All this trouble and lost time can be eliminated if the fixer will go over the dobby before he installs a new warp for a dobby pattern. There is only one way in which a dobby can be thoroughly gone over, however, and that is by a complete dismantling of the entire head. Hooks, needles, jacks, and index fingers must be removed and washed thoroughly in gasoline or some other solvent. It is true, of course, that this process requires time; but it is far better to take two hours in the beginning than take days later and still not have the job right.

After the dobby has been dismantled and washed, the next step is to install the parts in the proper manner. All worn-out hooks should be replaced, also needles and index fingers. We find the best method is to install the hooks first. Then the dobby should be squared; that is, the jacks should be equalized in the dobby frame. This can be accomplished by means of the two setscrews on the dobby-frame sides. When the hooks are installed, special notice should be taken of the back rest where the hooks repose when not working. It will be found that there are small grooves cut in completely across this rest. Therefore when the hooks are replaced, it is important to see that each and every hook rests between the grooves.

Before the index fingers are inserted, each one should be inspected for rough sides and unevenness. The fingers that are rough should be filed and polished, and those that are bent and uneven should be discarded.

After the hooks and index fingers have been installed, the needles are to be put in place. As each needle is inserted, the hook and finger should be raised to see that the needle works properly. Sometimes it will be found that, although the needle and index finger work properly, still the hook does not drop, due to its binding on the sides of the comb rack. When this is the case, the hook should be bent slightly so that it clears the comb rack.

After all this has been done, each hook should be rechecked to see that it is not setting too high or too low to the draw knife. If either condition exists, the hook should be adjusted with the jack wrench. Then the dobby may be scrutinized to ascertain that all jacks and hooks are resting evenly.

Next the loom card should be put on the barrel, and here caution should be exercised to see that each pin is inserted properly and perfectly straight. The writer has seen fixers, in making up loom cards, hammer the pins or pegs into the card. This, above all things, should never be done. Each peg or pin should be screwed in with the peg wrench.

Sometimes the cards are connected to each other by cord—another mistake. After a job has been started, it is not so very unusual to have the cord break, resulting in a long rip-back for the weaver. There is only one proper way to connect the cards, and that is by using the small links.

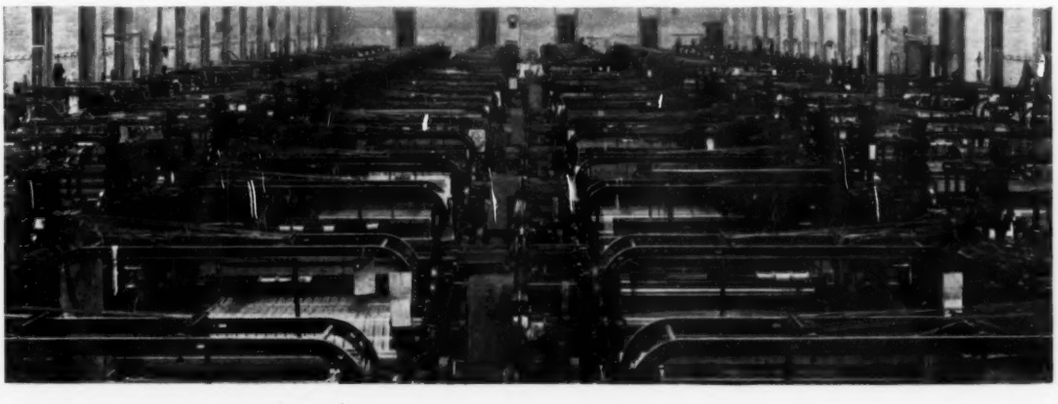
After the card has been properly made and put on the barrel, the barrel should be turned over by hand to see that each peg or pin strikes the direct center of the index fingers. Without this centering, mispicks will occur. Therefore, if the pegs or pins are off center, the two setscrews on the barrel must be loosened and a readjustment made.

The next move is to set the draw knife properly. When the draw knife is all the way back, the hooks should never be more than $\frac{1}{4}$ in. away from it. This is true of both the top and bottom knives. If the bottom knife does not correspond to the top, the long adjusting rod that connects the crankshaft to the dobby must be adjusted.

Finally the loom must be turned over by hand, to see if the jacks are lifting properly, as sometimes the barrel is not in time. If it is found that the hooks do not come down all the way when the knife is back, the barrel is out of time and should be placed ahead by releasing the screw that connects the barrel to the worm.

A dobby which has been gone over in the manner the writer has described will not cause any missing shafts or mispicks.

When a fixer is called to a loom for a missing shaft or mispicks, there is only one way he can overcome the trouble properly, and that is by having the weaver rip or take back to a point two picks short of the shaft miss, so that, by reversing the barrel chain and turning the loom over, the fixer can tell which shaft is missing. If this is not done, it is only guesswork, and the fixer is sure to be called back again.



WHERE SPLIT FABRICS JOIN

What is needed to produce sutures on full-fashioned hosiery machines

By M. C. Miller, M.E.
Manville, R. I.

◆ *Split sutures, Mr. Miller explained in the Feb. 14 issue, are the junctures between the different sections of split fabric. Herein he describes the production of the two-needle herringbone type. In his forthcoming book he will include diagonal sutures as well.*

MECHANISM for laying the yarn to produce the vertical herringbone split suture is relatively simple. For this purpose, all modern machines use mechanism with the carrier stops in an intermediate position, very similar to that shown in Fig. 85. In this figure, the seven carriers are shown at *A*, the carrier stop fulcrumed in a rigid support at *B*, the stop fulcrum at *C*, an extension *D* of the stop *B* connecting the stop with the link *E* to a cam lever *F* which is fulcrumed at *G* on a rigid support *H*. The lever *F* is fitted at its other end with a cam roller *J*, which rides on a cam *K*, a spring *L* normally holding the lever *F* and its roller *J* against its cam. The stop *B* is fitted on each side with hardened plates *M*, which are undercut a distance equal to twice the gage. The regular abutments formed on the particular carriers *A* that are being used for forming the split fabric contact with this hardened plate, which, while split fabric knitting is going on, is moved to and from the carrier abutments by the cam *K*, so that the abutments are at one time in contact with the thick part of the plate and at another time with the thin part, thereby permitting the stopping of the carriers and their later shifting a distance of two indexes.

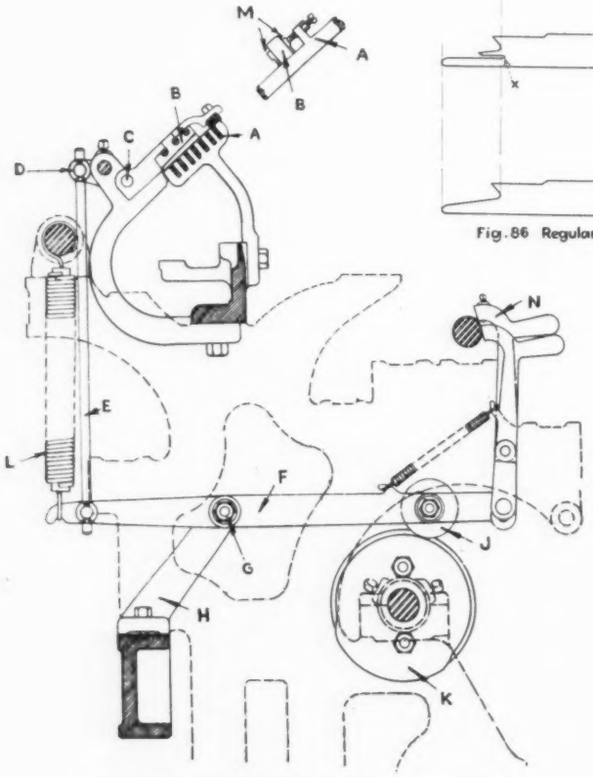


Fig. 85 Regular split yarn carrier stop mechanism fixed endwise

The mechanism is further fitted with a manually controlled lever *N*, so that the cam lever *F* can be raised with its roller *J* out of cam contact, at the same time lifting the stop *B* above the abutments of the carriers *A*, so that the carriers that were used to form the split fabric can be used for other purposes.

Suture Sinkers—In order that the yarn may be properly laid to form herringbone sutures, sinkers of a different shape from normal must be used. These sinkers are shown in Fig. 86. The regular jack sinker is shown at *g*; and the regular dividing sinker, at *h*. They are placed alternately in the machine, with a sinker like *g* between each pair of needles and a sinker like *h* between them. The special sinkers *g'* and *h'* are used at the place where a suture is to be formed. The dividing sinker *h'* is used between the two suture needles, while a sinker *g'* is used on either side of it.

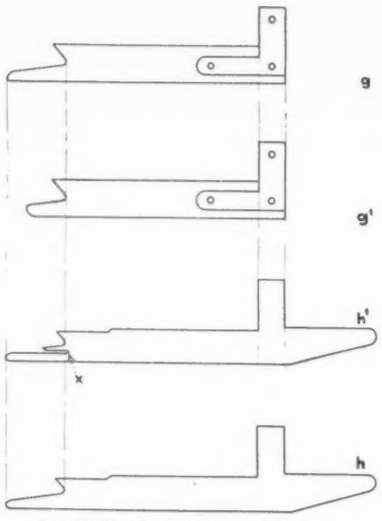


Fig. 86 Regular and suture sinkers

Suture Yarn-Laying—In Figs. 87 to 92, inclusive, a herringbone straight or vertical split suture is shown in its various stages of formation. In these figures, the shaded fabric *a* represents the reinforced portion of fabric; and *b*, the thin adjoining portion—although it is to be understood the two fabrics may be of one thickness if they are used entirely for ornamental purposes. The needles that form the suture are shown at *c* and *d*, the special joining-loop or float at *e*, with the end of the carrier tube at *f* and the special dividing sinker at *h'*. To the right and left of this sinker are the special jack sinkers *g'*; and on either side of these jack sinkers—positioned alternately—are the regular jack sinkers *g* and dividers *h*. The carrier *f* is always arrested in its traverse over the divider *h'*; that is, between the suture needles.

Jack Sinking, Right to Left—Fig. 87 shows the end of the yarn-sinking stroke in the traverse of the carrier from right to left, at one of the sutures. It is to be understood that the same rearrangement of parts takes place at any other sutures that are being formed at the same time. The reinforcing carrier *f* has stopped over the special divider *h'*, the last sinker to kink yarn is the special jack sinker *g'* at the right of the suture needles *c* and *d*, and the yarn *a'* has been formed into kinks around each pair of needles, the last pair being those at the right of the suture needles *c* and *d*. The thin yarn *b'* has been similarly kinked by the jack sinkers to the left of the suture needles, all the dividers *h* and *h'* remaining idle during the sinking or Coulier motion.

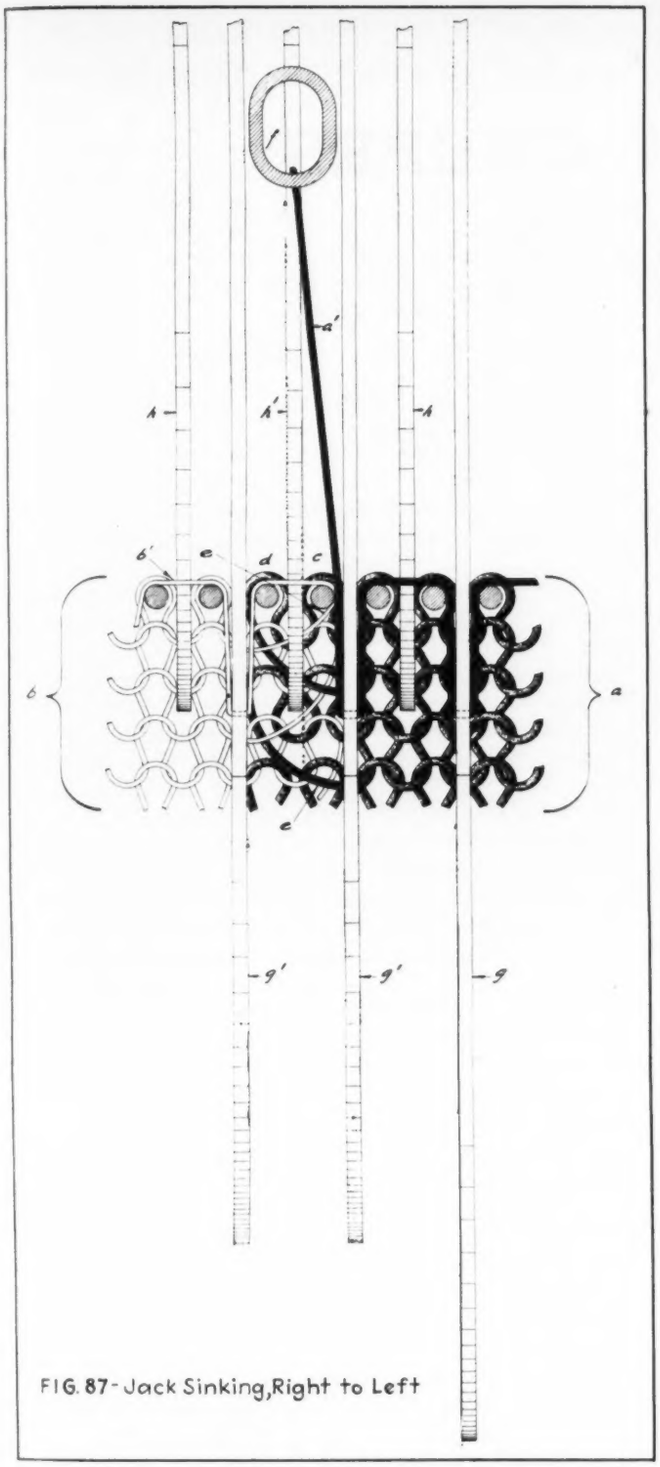


FIG. 87 - Jack Sinking, Right to Left

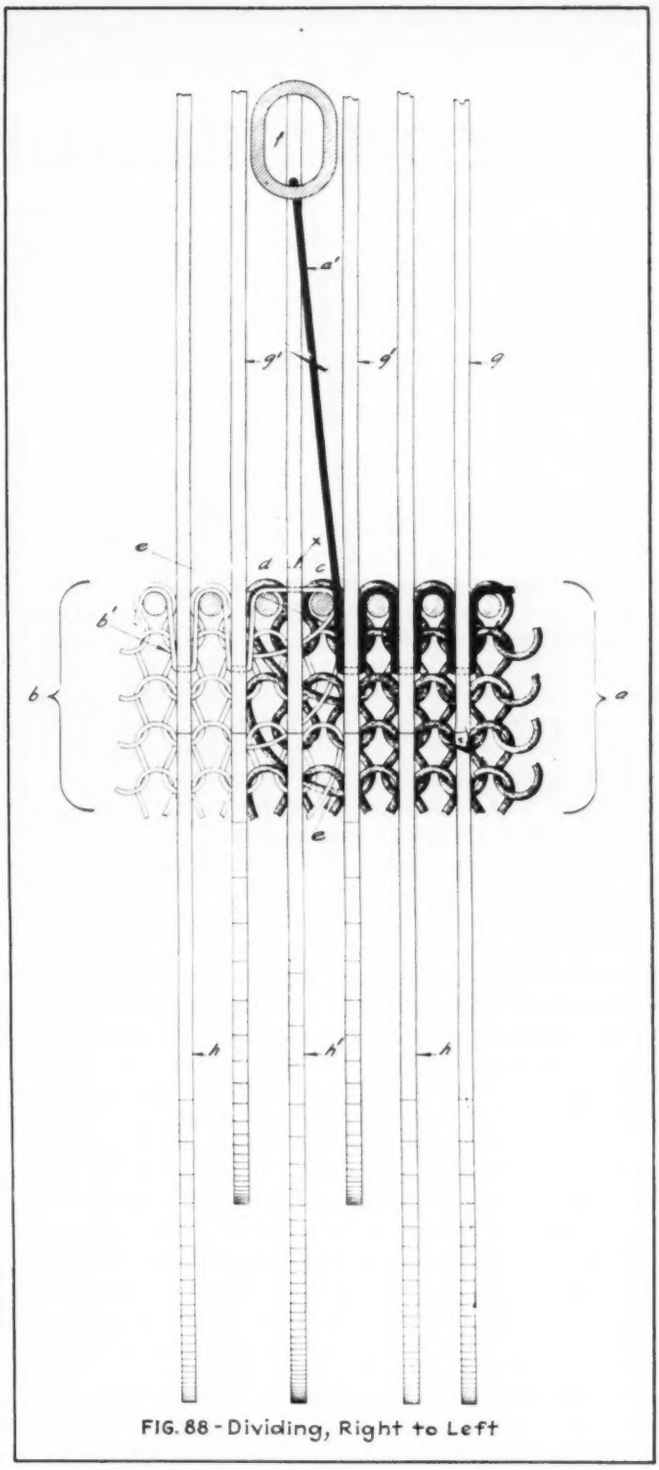


FIG. 88 - Dividing, Right to Left

Dividing, Right to Left—The sinking motion is followed by the dividing motion, and the end of this motion is shown in Fig. 88. The carrier *f* remains where it was at the end of the jack-sinking motion. All the dividers *h* and *h'* come forward en masse, the needles move forward slightly—that is, away from the carrier—to permit the dividers to kink yarn between each pair of needles so that all of the needles will have yarn kinked around them, with the exception of the suture needles *c* and *d*. It is to prevent the yarn floating between the suture needles from being kinked by the suture divider that the special form of dividing sinker *h'* shown in Fig. 86 is used, the throat *x* making this possible. The yarn *b'* should not be kinked at this point, as there is no excess yarn between the suture needles, as there is between other needles; and if the suture divider were not formed with the throat *x*, a tightening of the float *e* of the *b* fabric would result, thereby forming tight suture wales, which would lack the required elasticity. It will be noted that the throat *x* of the divider *h'* clears the bar of yarn between the suture needles *c* and *d*. If it is desired to shorten the float *e* somewhat and so, to a degree, tighten the suture, the throat *x* may be positioned to kink the bar of yarn partially, thereby robbing from the float *e* of the previously formed course.

The next article, to appear in an early issue, will describe the suture shift of the carrier.

Diagrams are reproduced through the courtesy of Louis Hirsch Textile Machines, Inc., New York.

Finisher must cut corners if he is to make a profit on

RAYON FRENCH CREPES

By Philip LeBrun

Continuously scoured French crepes are rope dyed on a reel dyeing machine. This method of handling causes a great many cracks in the goods, but results in a softer piece of finished cloth, due to the breaking action of the rope dyeing process. Jig dyeing results in a smoother cloth with few or no cracks, but with a slightly stiffer handle.

RAYON FRENCH CREPES are now in strong demand, in both the semi-lustrous printed styles and in the chalk-finish, plain-dyed styles. Deliveries are wanted within two or three days from the time the gray goods are received at the finishing plant. Again, because of severe competition, the amount received for finishing rayon French crepes is so small that many corners must be cut in the processing to insure any profit at all.

French crepes as received by the finisher always contain size of some sort. Frequently the size includes a starch or starch derivative which must be removed if a soft silky finish is to be obtained. The first wet-processing operation carried out in many mills today is a treatment of the goods with a 3 to 6° Bé. solution of caustic soda at a temperature of 100 to 130° F. for 5 to 20 min. This is followed by a rinse and a soaping for 30 to 60 min. at 190 to 205° in a 1 to 1½% soap bath. The strength of the caustic bath varies for fabrics of different constructions. That is, a 56-pick cloth would be treated in a 3° Bé. solution, while a 126-pick fabric is treated in a 5° Bé. solution. In order to keep processing costs down, as low a concentration of chemicals as is possible is used on every occasion.

Equipment Used

A few mills handle French crepes on jigs. In such plants, the gray goods are first batched up on shells in approximately 1,000-yd. lots. The cloth is next given two to four ends through a caustic soda solution similar in concentration and temperature to that cited above. The excess caustic is rinsed out by giving the cloth two ends on a second jig, which is continuously overflowed. A final soaping on a third jig completes the process. Some dyers simplify the process by using a 1% soap bath containing ¼% caustic soda, in which the cloth is run at 200° F. for six to eight ends. Other dyers go still further and simply give a thorough caustic treatment followed by a rinse, and omit all soaping. The latter procedure gives a somewhat stiffer cloth, which later requires more softener and finally results in a bulkier cloth.

A continuous boil-off machine is usually preferred for handling French crepes. It often consists of an old phosphating and washing unit. This is utilized as follows: The cloth is run through full width into the first compartment containing caustic soda solution at the desired concentation. It is then allowed to pile up for a while before the end of the cloth is pulled into the next compartment. By this time the cloth is in the rope form. It is alternately piled and then pulled through the various compartments containing in rotation: warm water; hot water (180° F.); soap; warm, soft or softened water; and cold, soft or softened water. When the fabric leaves the machine, it is ready for dyeing.

The units are run about 60 to 70 yd. per min.; but the cloth is piled in the various compartments, so that close to 1½ hours ensues before the first end comes through the machine. Production piles up after that at the rate of about 3,500 to 4,000 yd. per hour.

Method of Drying

After dyeing, the cloth is dried on a dry box, a frame, a Palmer machine, or a dry can. The former method yields the softest goods with the most dry cracks, while the latter yields the stiffest goods with the least dry cracks. Can or Palmer drying is preferable for the last reason, since softness may be obtained in other ways. Palmer drying is preferred to can drying, because the latter results in a more lustrous fabric. Frame-dried goods frequently have scalloped edges and dirty clip marks.

The customary method of softening is to run the dry, dyed goods through a two-roll mangle containing softening solution and then dry again on the Palmer. A typical softening solution consists of about 1 gal. of sulphonated olive oil to a 50-gal. barrel, containing in addition about 1 gal. of duller (usually titanium oxide paste). To prevent any excess luster on the goods, it is best to run the Palmer machine with the blanket as loose as possible.

It is possible to omit the sizing process by adding about 1 gal. of sulphonated olive oil, together with an equal amount of dulling agent to each 200 gal. of the final dyehouse rinse, which is made as short as possible. The extra cost of the chemicals is more than offset by the time and labor saved plus the ability to obtain double the production from the same number of Palmer machines in the finishing room. The goods are next framed and calendered.

To obtain maximum softness, the crepe should be passed around a cooling can at the end of the frame and also calendered cold. This will tend to condition the rayon and at the same time prevent the excessive luster caused by hot calendering. It is generally recognized that properly conditioned rayon fabrics have a softer mellower feel than bone-dry goods or under-conditioned cloth.

A much better handle and an enhanced appearance are obtained by running the cloth through a decatizing machine before calendering. The decatizing process will insure proper conditioning of the rayon fabric and will also impart a duller surface. In addition, the hot, live steam treatment will tend to remove any signs of cracks remaining from any previous processes.

Probably the cheapest satisfactory method of handling French crepes is to boil off by the continuous process, rope dye including the softener and duller in the final rinse, and centrifuge. Then open up the cloth by passing over an opening reel, dry on a Palmer, frame, decatize, and calender. This sequence of operations should result in a dull, soft, mellow cloth which is free from dry cracks. Prints are handled very much like plain dyes, except that dullers are rarely used in the size mixture. In addition, the softener is applied in slightly higher concentration (1 gal. of oil to 100 gal. of water) in the last box of the print washer.

Not until it hired a new super did this mill solve the mystery of

By David W. Welsh

SHADED WORSTEDS

IN the March issue the writer told how a large woolen mill making heavy kerseys was suddenly afflicted with an epidemic of side-to-center shaded goods. The trouble finally was traced to faulty operation of an upright dryer. While improper drying is a frequent cause of shaded goods, it is by no means the only cause. Take, for example, the following case of a worsted mill.

A mill entirely devoted to the production of serges was having trouble with side-to-center shaded goods. It was believed that the defect was due to the fact that the water used in dyeing and finishing contained an excess of lime. The goods were covered with a powdery deposit, alleged to be lime, which no amount of brushing could eliminate. Much of it was shaken off the edges by the beating of the brushes on the shearing machines; this left a heavier deposit in the middle of the pieces, which, being of a lighter color, gave the goods a shaded appearance.

One Way Out

Tests of the water for hardness were religiously made twice a day, and a careful record was kept. Various expedients were tried to eliminate the lime during scouring. An excess of alkali was used in the scouring formula. Other chemicals, recommended to reduce lime in water were used; but nothing seemed to have the desired effect; the powdery deposit persisted and accumulated on the shears. Hundreds of pieces had to be returned to the dyehouse, boiled up, and more dye added to rid the goods of the powder.

Then it was discovered that one way to avoid returning the goods to the dyehouse was to shear but five pieces at a time, run the leader on, blow the powder out of the brushes and the rest of the shear by compressed air, shear another five-piece lot (one-half of a dye set), and repeat the compressed-air blow of the powder from the machine. Pale, blue powder was deposited all over the dry finishing room, it filtered through the air, lodged thickly on every beam, and plastered itself all over the walls and windows. At the end of each week—cleaning up time—the shear tenders, armed with compressed air nozzles, attacked the dust wherever lodged.

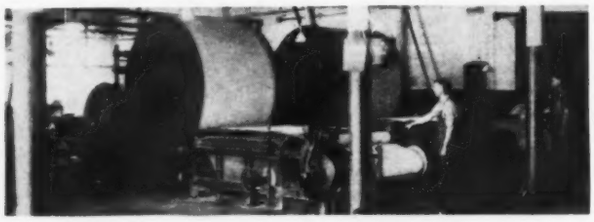
After this shaded-side-to-center mystery had been going on for a year or more, and the nearest solution arrived at was to run five-piece lots on the shears and give a compressed-air clean-up, a new superintendent of dyeing and finishing was ushered in. Of course, the powdery deposit was called to his attention. The new super scanned the water analysis records for a month back, and found that the average hardness was only 19 p.p.m. At times it had been much higher; but, of course, that had nothing to do with the present. His first thought was that if all the lime in the month's run could be collected and deposited on one piece, it could not deposit as much on that piece as there was on every piece of a 400-piece per week production. He decided, therefore, that the solution must be found elsewhere.

The goods were looked at over the speed perch from the dryer, then at the sanding or polishing brush. No deposit of powder was evident at either place. But an examination of the shears disclosed a condition never before experienced. The man in charge had been trained to hone the ledger blades with the face of the hone in an almost perpendicular position. The blades had been honed as many as two to four times every week on account of dull cutting and burned blades. They had been honed so much that they had almost as much bevel on the front of the blade as the grinding puts on the back. As everyone who has ever sheared cloth knows, the point of the blade, the inner edge of the rest, and the revolver are the working tools of a shear. It is here where Greek meets Greek, and on those four double shears the hardest tug-of-war that was ever enacted on serges was daily taking its toll.

Cause and Cure

The hollow at the point of the ledger blade prevented the cloth, revolver, and rest from getting down to business, as all good shears should perform. The cloth was sunk in a crevice, as it were, the point of the blade and the revolver only acted as a scraper, so that instead of cutting off the nap, the face of the cloth was being scraped, ground, and pulverized into a fine powder. The pieces had to have eight to ten runs, when four runs would have done a much finer job had the shears been as they should be. To overcome this trouble it was necessary to substitute new blades for two which were worn away almost down to the iron, and to grind the other ledger blades long enough to work out all the false bevel on the face. The powdery deposit quickly vanished, and the lime has passed out of the limelight.

New light on starch properties affords opportunities for improvement of WARP SIZING—



By F. G. La Piana
Stein Hall & Co., Inc.

IN THIS country, the use of starch or starch derivatives, such as thin-boiling starch or soluble starch, is practically universal for sizing cotton, worsted, or linen warps. Starch and starch derivatives are also widely employed in finishing cotton fabrics. An efficient sizing or finishing mixture is one which can be readily applied by the normal machinery, and which, on drying, imparts the desired characteristics to the yarn or fabric. The size or finish is applied in the form of a paste; but the desired characteristics are supplied by the size after it has dried in the form of a film.

The mechanism of paste formation, when starch suspended in water is heated, consists in the absorption of water by the granules, in the swelling of the granules, and in the bursting of some or most of the granules, and —upon cooling—in the setting of this material of a viscous gel. It is now generally admitted that there are two fairly well defined constituents of the starch granule—alpha amylose, which is insoluble in water; and beta amylose, which is soluble. The alpha amylose seems to function as a membrane enveloping the soluble beta amylose. This membrane is impermeable or nearly so to cold water, but when heat is applied to a suspension of starch in water, this membrane becomes permeable and, as the temperature increases, water rushes inside the granule. The alpha amylose, while not soluble, is capable of stretching and distending—so much so that the volume of the granule may increase to many times its original size as more water is absorbed. If there is enough starch present, the swelling reaches a point where no more free water is left outside the granules and a very thick paste results, which is practically devoid of flow. This point corresponding to the maximum degree of gelatinization is the point of maximum viscosity for starch paste of any given concentration.

If heat, and especially agitation, is continued, the granules gradually start to disrupt, the inner substance (water beta amylose phase) leaches out, and, when enough liquid is free again to float the rest of the swollen undisrupted granules, flow is re-established in the paste, and the viscosity continues to decrease until a point is reached when heat and agitation do not seem to affect appreciably the remaining granules, and the viscosity reaches a value more or less constant.

According to reports of investigations made at Shirley Institute of the British Cotton Research Industry Association, for a starch film, the load-extension diagram closely resembles that of a moderately ductile metal, such as copper. The curve is rectilinear for small loads. There is no definite yield point; and the curve appears perfectly continuous, except that it shows a much more rapid rise as the breaking point is approached. With loads below a certain value, the film instantly recovers its original length on unloading. But if the load is sufficient, the instantaneous recovery is incomplete, and is followed by a slow contraction. With high load, especially if the time application be considerable, a permanent stretch is observed. There is little difference between the elastic properties of films made from different starches. In dry air the films are harder and more brittle than in moist air. Weaker films are obtained if the starch has been oxidized, treated with enzymes, or prepared with acids or alkalis. Small quantities of soap in the mixing cause very considerable weakening. Glycerin, castor oil, and tallow soften the films, but also weaken them if more than 5% is added. While these results refer only to the strength and other properties of the dried film independent of the cloth or yarn, there is no reason to doubt that starch films in cloth or yarn will not behave more or less in the same manner, except that there are such other factors to be considered as penetration, adhesion, and sometimes lubrication. Although to obtain the maximum strength and transparency, a pure starch paste is indicated as superior to mixtures, the presence of the other substances or of modified starches may possibly be desirable to produce a sized yarn with the best weaving qualities, or a finished cloth with the required stiffness, weight, or smoothness.

Controlling Factors

Four factors which influence the results obtained in sizing cotton warps are: (1) concentration of size; (2) viscosity of size; (3) wetting power of size; and (4) congealing properties of size.

The yarn entering the size box acquires a sheath of paste, which is the more voluminous the higher the viscosity of the paste. Thus the viscosity of the size determines primarily the amount of sizing paste picked up by the yarn. While a thick-boiling starch will produce heavier sizing than a thin-boiling starch at the same concentration, when one type of starch alone is employed and size is prepared and used under a standard procedure, viscosity depends mainly on concentration.

Variations in the concentration of size may be minimized by observing the following precautions:

1. By choosing a conscientious and careful operator to prepare the size and giving him instructions to weigh the materials for each batch.

This article is based on two technical papers—one delivered at New Bedford Textile School, New Bedford, Mass., on Feb. 27; the other, at a meeting of Committee D-13, American Society for Testing Materials, held in Washington, D. C., on March 12.

2. By testing the raw materials, especially starches, for their moisture content; and, if this is found to be appreciably out of line, as compared with the normal, to change the formula accordingly. The normal moisture for thick- or thin-boiling cornstarch is 10 to 12%, for potato starch 18 to 20%, for tapioca flour 13 to 15%, and for sago flour 18 to 20%. All starches if stored in a damp place absorb moisture, and lose it if stored in a very dry place.

3. By cooking all the batches exactly the same length of time and at the same temperature.

4. By draining the steam line of all condensed water, especially before starting in the morning.

5. By seeing that each batch, when finished cooking, reaches the same height in the kettle.

6. By using as little live steam as possible in the storage tank to keep the size hot. With a well-cooked size, it is possible to use a jacket or steam coil steam instead of live steam.

7. By keeping a constant level of size in the size box. This requires an automatic control, so that enough fresh size is fed continually to the box to replace that taken up by the yarn.

8. By keeping the size in the size box as near to the boiling point as possible (from 195 to 205° F.), and balance in this way by evaporation the condensation taking place.

Viscosity of Size

Experiments on hot starch pastes show them to be very different from ordinary liquids, in that their rate of flow is not proportional to the driving force; in fact, these pastes cannot be treated as true liquids and, therefore, no single value can be found to describe their consistency. It seems very probable that the suitability of a starch paste for warp sizing depends very largely on its behavior under the heavy pressure employed in this operation, and of this behavior unfortunately very little is known.

There is a limit to the change in viscosity of starch paste upon continued boiling and agitation; but the difference between a fresh kettle of size and a kettle that has been cooking and circulating for a long time may be as marked as that existing between a heavy, thick syrup and a solution with body just slightly heavier than plain water; and this may take place even if there is no or very little difference in the solid concentration of the two sizes. Potato starch and tapioca flour lose their viscosity in less time and at a higher rate than cornstarch or sago flour.

Another important element that greatly influences the viscosity of the size is the temperature. The colder the size, the more viscous it gets; and a drop of 15 to 20° in temperature may cause a very marked increase in the consistency of the size and in the amount of size picked up by the yarn.

Variations of the viscosity of the size may be minimized by observing the following precautions:

1. By carefully controlling the solid concentration in the size. A small change in concentration as low as 2 or 3% has a relatively large effect on the viscosity of the size.

2. By carefully controlling the temperature in the size box. This is better done by automatic regulators.

3. By carefully controlling cooking time and temperature. Size that is undercooked is thick and of heavy body, is liable to clog the pipes, causes hard size spots whenever the slasher is stopped, does not adhere sufficiently to the yarn and produces excessive shedding in the slasher and in the loom. Size that has been cooked too long is thin. When the original concentration is low, not enough of it is taken up by the yarn, with the result that the warps are soft and cause no end of trouble in weaving.

4. By eliminating excessive agitation of the size. Agitation and shear stresses, such as pumping and circulating through narrow pipes, reduce the viscosity of the size just as much, if not more than, dilution up to a certain limit.

Raw cotton is capable of being completely wetted by hot size, but the wetting is dependent on high temperature and the application of mechanical force for the spreading of size over and into cotton yarn. Experiments made with different wetting-out agents added to the size mixture in the recommended proportions, did not show any decided improvement in wetting power, while soap fails to produce any effect in this regard in the presence of starch. We must draw the conclusion that thorough wetting of cotton by size is not an effect of surface tension, as is usually understood when referring to true liquids, but an effect of such physical conditions as working as near to the boiling point as possible and taking care that the squeezing roller exerts effective pressure on the wet yarn. Starch films adhere strongly to surfaces which are adequately wetted by the paste from which the film is dried. If, however, the paste does not adequately wet the surface on which it is applied, the film dried on that surface will be loosely attached and will pull or break off at the least resistance or friction. There is ample evidence that imperfect wetting, with consequent inadequate attachment of the size to the cotton, is cause of the dusting of the size which is so troublesome in weaving. In this connection it should be said that while adequate attachment and adequate spread of the size into the uneven surface of the yarn is of primary importance, there is as yet no evidence that any practical importance attaches to the degree of penetration of size into warp yarns.

Congealing Qualities of Size

It is generally admitted that for sizing fine yarns, size made from potato starch gives better results than size made from cornstarch. While there is scarcely any difference in the hardness, strength, and elastic properties of dried films made from potato starch or cornstarch, there is quite a marked difference in the rate of congealing of pastes made from these two starches. Paste made from potato starch congeals much more slowly than paste made from cornstarch. It probably is just this property which makes potato starch size so valuable as a size for fine yarns. Being slow congealing, the paste has a chance, not only to anchor itself better on the yarn, but to spread more evenly and to cover the weak points in the yarn before advancing evaporation deprives it of its mobility. It is probable also that if there is any advantage in using thin-boiling cornstarch over thick-boiling cornstarch, beside adding weight to the cloth, the explanation probably will be found in the fact that paste made from thin-boiling cornstarch congeals at a lower rate than paste made from thick-boiling cornstarch. As to the superior adhesiveness claimed for thin-boiling cornstarches, actually it does not exist, as they do not wet the cotton yarn any better than the thick-boiling starch. As regards the better penetration attributed to the lower viscosity of these starches, there is no conclusive evidence that any practical importance attaches to the degree of penetration of size into warp yarns. On the other hand, the usual processes of making the starch thin boiling reduce the strength of the film in the same proportion that they reduce the body of the paste. It is very probable, too, that part of the benefit obtained by the addition of fatty substances to the size might be traced to the fact that some of these substances slow the rate of congealing of the starch paste.

[*In a subsequent issue Mr. LaPiana will discuss the mechanism of warp sizing and the use of starch in finishing cotton fabrics.*]

The chemist's hair was turning gray until he finally found the solution to a

PROBLEM IN PRINTING

By Frank L. Taylor

◆ *There is a certain satisfaction which one always feels upon solving a puzzle. But all puzzles are not tackled just for sport. In the following article the author describes the way in which he went to work on a puzzle which was far from being a joke. We congratulate him for sticking to it until he reached the solution, and we feel sure that every printer and dyer—whether or not he is now using aniline black—will find the method of approach employed in this case is applicable to others of the baffling problems encountered in every-day work.*

ANILINE black prints, always a veritable sword of Damocles to all concerned, presented a problem unequalled in the author's experience in its ramifications and number of factors involved. The writer cannot state that the theoretical reasoning built up and followed is above rebuttal, due to the fact that neither time nor facilities are provided for the average plant chemist to follow a line of research in pure science, once a true practical solution has been evolved. He can state, however, without fear of contradiction, that the remedies employed quite effectually stopped the trouble.

The first appearance came in a single-color outline and stipple pattern in the form of a ragged line completely across the cloth, varying from 1 to 5 in. in width, in which the color was a dirty, brownish gray instead of the jet of a true ungreenable black. In the whole 2,500 yd. of the combination, there were only eleven of these places, the majority similar in shape to the bar described, with an occasional 12- to 18-in. strip running along the selvage in the form of a triangle with its base parallel to the filling. No regularity of occurrence was evident, the places being as little as 2¼ yd. apart and as much as several hundred, with no indication of a definite repeat. While these few defects merely caused four short ends and some little inconvenience, the fear of recurrence hung like a pall over every man responsible. And so there started a hunt that was to last over a half a year before the final solution was to be unfolded.

When the defect was first discovered, the goods had already been soaped and, as was to be expected, yielded nothing on analysis. Alkali, the arch enemy of the color, was named almost immediately as the cause, although no explanation of its being in the cloth, that would hold water, could be found. The idea that the goods might in some way have come in contact with damp naphtholated goods was advanced; but minute examination failed to reveal the slightest trace of naphthol, which must necessarily have been precipitated by both the acid color and the chrome and acid aftertreatment in such a form that the ordinary soaping process would not remove it. A second angle was that backgray used first for Rapidogen and vat colors might have been used again without washing, the bars coming where a doctor had been wiped or taken out. Accordingly, a heavy blotch was printed on backgray with both of these colors and dried. Then, the same roller was used to print patches over the gray cloth; but with no effect.

The backgray was still under suspicion, as it was washed in a hot soda ash solution, although thoroughly rinsed afterwards. The theory here was that some soda ash might remain in the cloth and gradually build up in the lint collecting on the scrimp bars and first stack of dry cans. Samples of the lint revealed soda ash on analysis, but in very small amounts. Nevertheless, wet samples were pressed heavily on the back side of the white cloth and dried. When the cloth was printed, it showed nothing wrong. Further to vindicate the backgray, drippings from the squeeze rolls in front of the cans were collected, poured on the cloth, and dried. Needless to say, the vindication was complete. In desperation, somebody remembered that the cloth wrappers on the dry-can swings were stuck to the rollers each week with the very alkaline vat paste; but inspection revealed that there was not a trace within the three outside layers of the wrapper.

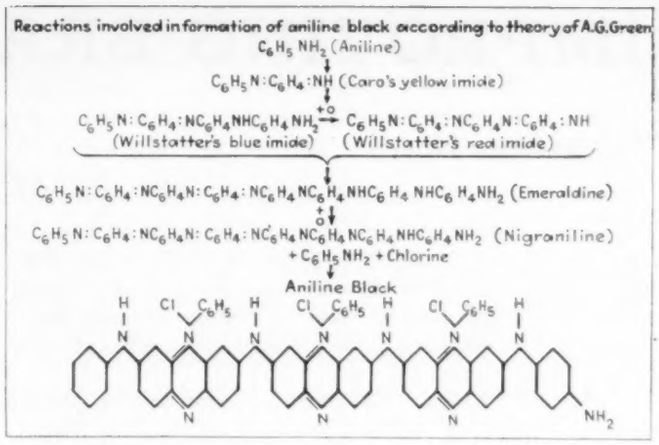
After a week of suspense, just as the hope was dawning that the trouble was one of those things that happened once and only once, the defect reappeared. This time the pattern was another stipple, but with a small dot of another color. This color was an Indigosol blue, and it was unaffected. The alkali theory was exploded immediately, for the dye was of the type hard to oxidize, and even a very small amount of alkali would have reduced the shade decidedly. Could it have been a salt, such as sodium chloride or sodium sulphate, salting chemicals, or intermediates out of solution? If so, whence did it come? The latter was easy to locate, for the goods were not washed after antichloring with sulphur dioxide. The salts thus formed, concentrated on any lint on the dry cans and printed back on any fresh wet goods. This, however, was not the cause, for two reasons: first, that there were no repeats; and, second, that a 5% solution of the two salts sprinkled on the goods, dried, and then overprinted with both the black and blue, hurt the blue quite noticeably and the black hardly at all.

Sulphur Dioxide Fumes

By association of ideas, the next thought was of sulphur dioxide fumes from the vat agers hitting edges of the cloth hanging over the ends of a box. Following up this idea, patches were struck off and hung at the very mouth of an ager for half a day, and then aged. In keeping with our past degree of success, the patches were excellent. As additional proof, both wet and dry patches were exposed to sulphur dioxide fumes from a laboratory generator, but had an effect only when the cloth was wrapped directly around the nozzle of the generator, showing that the quantity needed was far greater than could ever exist free in the soaper room.

Some time later another pattern containing the bars and stripes was caught at the ager; and this time, to show its lack of partiality to other colors, it was in combination with a vat green which was not affected in the slightest degree. Patches of the bars were taken and analyzed with utmost care, but gave uniformly negative results. At the same time, in again hanging patches in appropriate places, we folded one double, hung it next to a hot soaper box, and allowed it to stand all day. On ageing, the side next to the steam from the soaper was a duplicate of our trouble, while the side opposite was practically unhurt. Here, supposedly, lay the answer to our question.

A 100-yd. sample on the original stipple pattern was immediately run, the edges were pulled over the ends of the box, and the box was put close to a soaper and allowed to stand for 6 hr. That afternoon each fold was touched with a spot of soda ash solution, and the sample aged. Each spot corresponded to a bar or stripe. Apparently our problem was solved, with a positive indictment of moisture as the offender. On checking back still further, we remembered that glycerin had recently been adopted as a lubricant in the color and that high-pressure steam lines had just been run to each soaper to insure sufficient heat for high-speed production. This latter had produced a much larger amount of water vapor in the air of the room. Hoods and fume fans were at once installed over the hot boxes of the soapers and another lubricant substituted for the glycerin.



Trouble Reappears

These measures were taken in the heat of late summer, and the bars completely disappeared, permitting everyone to breathe freely once more. Four months passed, and then in the middle of winter the soaper-room foreman brought in the same trouble again late one Monday afternoon. True, the pipes sweated and the steam hung like morning mists over a river the first half day of each week, but the chemist could not quite visualize the effect of moisture as a destroyer of aniline black, although taking off the boxes and ageing them as soon as the goods were dry did act as a preventive measure.

Going into the problem again, we found that every pattern except one in which the trouble had occurred had been printed on one of three machines, side by side. Careful inspection from the yarded roll to the swing revealed nothing, until one bright sunshiny day, there came a light, literally and figuratively. Each of these machines was in such a position by a central skylight that during a large part of the day the dried goods were directly in strong sunlight. The top layer, naturally, was covered as fast as it hit the box, but ends pulled out for inspection, new seams, patches, etc., were allowed to hang over the sides, usually in straight folds, but occasionally twisted to expose modernistically shaped places to the light. We had our mysterious evil spirit at last. Patches were immediately struck off and exposed in the Fadeometer, both wet and dry, for 15 min. When taken out, they showed almost fully developed places where they had been exposed, with only slight evidence of discoloration. The patch originally wet, although perfectly dry now, seemed somewhat the worse.

The experiment was repeated, this time leaving the patches in for a full hour, even though it was known that the plant exposure could not have been equal to eight hours of August sunlight. This time the reward was larger, in that the wet patch showed a medium discoloration, although the dry one was only slightly affected. Something was definitely missing from the picture. The heat from the Fadeometer was certainly making the patches completely dry, eliminating any catalytic effect of moisture, but this alone was not sufficient. A further study of the records showed that the trouble almost invariably occurred in goods printed Monday or Tuesday. A trip to the color shop the following Monday gave the missing clue—that color made the previous week and not used was allowed to stand over the week-end and then used wherever it could be placed.

Patches printed with both old and newly made color were again exposed to the Fadeometer in wet and dry states. As before, the wet patches were discolored; the dry, hardly at all. The old color was much the worse in the former, while the difference was negligible in the latter. Finally, another similar set of patches was taken, the first one air dried, the second dried very lightly on the can, the third medium dried, and the last dried heavily. These were then hung where they would be exposed to both high humidity and direct sunlight for two hours. The air-dried and lightly dried patches with new color were partially developed and only slightly discolored; with old color they were heavily discolored. The medium-dried patch showed some discoloration in the new color and practically none in the old. The heavily dried patch showed none in either color. Following the outline of the formation of aniline black according to the theory of A. G. Green, the story was complete.

One or more of the condensation products formed in the oxidation of aniline was very sensitive to light in the presence of a sufficient amount of catalytic moisture. When an aniline black color is printed and then exposed to light, the oxidation is first catalyzed until a point is reached when the product formed is decomposed by light. If this form is passed over quickly enough, little decomposition will result. The dried strike-off patches had been dried by hand heavily enough to carry the reaction well into the nigraniline stage, where the intermediate was comparatively safe from the ravaging effect of light. In a like manner, the wet patches were developed so quickly by the light from the Fadeometer that, in addition to the lack of necessary moisture, they were carried past the sensitive stage before too much damage resulted.

From a practical standpoint in the plant, the new color was only very slightly developed in drying over the cans at ordinary speeds, so that any effect of light and moisture merely continued the development further, but not to a point where decomposition would take place. The old color, however, on standing had begun its development in the paste, with the result that the slight further oxidation on the cans placed it either in the sensitive stage or where it could very easily go into it. As further proof, the medium-dried new color had more closely approached the sensitive stage and was affected far more than the slightly dried one, while the old color had already passed the danger point. Likewise, the heavily dried patches had both safely passed the danger zone.

In actual practice, any color left over the week-end was converted on Monday to the heaviest shade printable, by the addition of fresh aniline salt and chemicals, and used on blotches and large figures where the relatively large amount of color would be less affected. In addition, ends were put carefully back in the box—all with the result that this particular bogey is no more.

IMPROVING BRAID TOPS

Correcting some fallacies in theories of preparer drafting and ratching

By Webster Norris

LONG-WOOL PREPARERS have received occasional attention from writers on technical subjects, but unfortunately many of the figures and statements are so erroneous and misleading as to be of little or no value to practical men.

A lesson can be gained from the accompanying photograph. The wool, sound Lincoln from the best fleeces, was submitted to two combers with a view to obtaining, as far as possible, the same top. Tops *A* and *B* show the result—top *A* being good and what was expected from the blend, and top *B* being the other comber's effort, showing how wool may be spoiled in processing. This may be due to some young industrialist following blindly the "facts" and figures found in certain textbooks. Take, for example, some of the figures in the following published table:

Preparers	1st	2nd	3rd	4th	5th	6th
Back draft	7	6	5	4	3	2½
Front draft	6	6	5	5	4½	4
Total draft	42	36	25	20	13½	10
Front pins	3	3	2⅞	2¾	2⅝	2½
Back ratch	3¼	3⅛	3	2⅞	2¾	2⅝
Front ratch	2½	2⅜	2⅜	2⅞	3	3⅛

The back draft is the number of inches which the fallers travel while the back rollers deliver 1 in. This draft, for all practical purposes, should cease after the third box, thus making a real distinction theoretically between preparers and the ordinary gills which follow in a set. The usual distinction makes them all sheet or can preparers, which is only true in a general sense, and not in accordance with the actual working of the machines. What back draft is put in after the third machine is called lead or tension, and it should be no more than just the amount necessary to get the wool down into the pins. More than that has a tendency to cause thin places at irregular distances in the slivers coming out of the boxes. Where figures such as the above are used in actual work, tops like *B* may be expected. In the mill the following drafts are about right:

Preparers	1st	2nd	3rd	4th	5th	6th
Back draft	7	4	2½	1¾	1½	1¼
Front draft	6	6	6	6	6	6
Total draft	42	24	15	10½	9	7½

A B

A and B are the results obtained by two different mills in preparing and combing the same Lincoln wool, shown at the left.

The ratch of preparer gill boxes is the distance between the back and front rollers. The construction of the machines is such that the ratch is invariably more than the longest fibers worked in them, when both the back and front rollers are as close to the fallers as they can be set. The adjustment of the back rollers in the first three machines is primarily to relieve the heavy strain on the fallers, and it is of the utmost importance in good preparing that this should be well attended to; otherwise, both wool and machines will suffer.

A good practical man sees at a glance whether the rollers are too near or too far off. If the fallers at the rising end drop off the cams on to the saddles like steam hammers, the rollers are too near; and if, on the other hand, the wool rides on the pin tops, it is evident that they are too far off. Between these two extremes the practical man readily finds the right place without even knowing what "ratch" is, in the sense that the spinning and drawing overseers use the term.

As regards the so-called front ratch, every comber knows the value of well-prepared slivers for the comb, and to attain this object he works his machines with the front rollers as close up to the fallers as possible without damaging either. It is only in exceptional cases, when dealing with the best wools, that the front rollers can be set away from the faller to advantage.

The figures quoted for the so-called back and front ratches have no value in practice and are misleading. Let it be assumed that the back rollers of the first three machines in a set are all close to the fallers. We may then draw them off to suit different lengths of wool, as follows:

Preparers	1st	2nd	3rd
Shortest sorts	0 in.	½ in.	1 in.
Medium sorts	1 in.	1½ in.	2 in.
Longest sorts	1½ in.	2 in.	2½ in.

The fallers have a powerful tendency to pull the rollers nearer to them after they have been set. With no provision to overcome this, it will be found an advantage to have suitably made wood packings to place between the

roller stands and the frame sides. These will greatly relieve the two bolts which resist the pull.

Prior to 1880 it was a common practice to have two men, called makers-up, at the back of the first machine in a set to straighten the wool as it was being laid on the cloth which carries it into the back rollers. These men at that time were largely drawn from the old hand-combers. About that time one of the two makers-up was dispensed with. Adjustment of back rollers after this change became of great importance, as the machines then had to do what had been partly done for them.

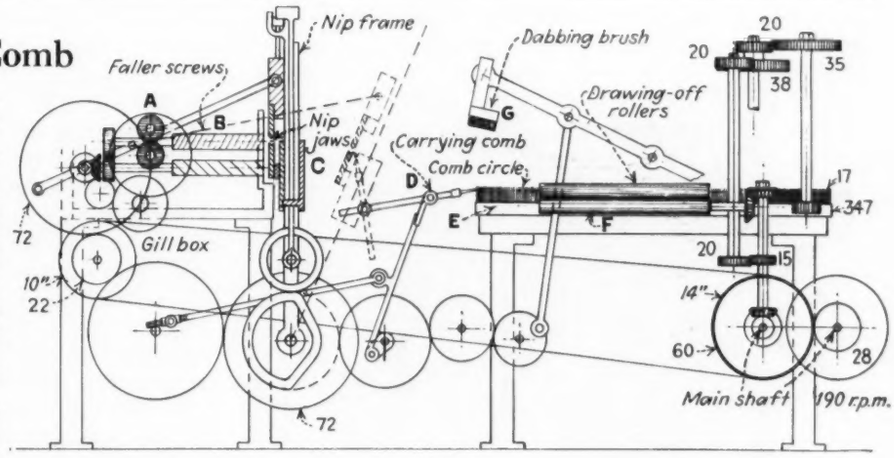
The above change probably gave rise to the assumption that more fibers would be broken between the back rollers and the fallers, since the partially straightened wool was apparently firmly held by the slow-running back rollers, as the pins of the fallers passed quickly through it. One enterprising firm of wool combers introduced preparer boxes having two sets of screws and fallers in the same machine, with the object of reducing the breakage of fibers, which appeared to them and to others a serious defect in the ordinary machines. The first set of fallers in the new machines was run at or about the same speed as the back rollers. The second set was so arranged and speeded that the fallers straightened the wool as it left the first set, thus freeing what is the fixed end of the fibers in the former preparers. This was an ideal arrangement from the theoretical standpoint, and great things were expected from it. The promoters and makers of the machines spent much time and money in perfecting this new principle, and writers were loud in its praise, with the result that many machines were put into use. In practice, the extra first cost, greater difficulty in operation, and the fact that very little breakage of fibers takes place in well-managed single boxes prevented their coming into general use.

There is no such thing as a standard set of preparers. What the leading makers call their standard sets are subject to great (and often unwise) variation by users.

In making braid-quality tops backwashing is resorted to only when a specially good color is desired for purposes of sale. It is introduced after the fourth preparing box, and before the wool has been oiled. It gives the wool a brighter appearance and a softer handle, but has a tendency to make it loose and fluffy. Some materials will not stand it, notably alpaca. The opportunity is sometimes taken to tint the wool with some blue or violet color in order to neutralize its natural yellow color.

Slivers of prepared wool, when spread out in thin sheets, have a somewhat cloudy, gauzy appearance, due to the presence of small clusters of fibers which have escaped the action of the faller pins, to a quantity of curly fibers too short to be successfully laid in gilling,

Operation of Nip Type Comb



BECAUSE the nip type of comb is unfamiliar to the majority of American worsted men, the main features of the machine are illustrated by diagram at right. These include a gill box without front rollers, a sliding nip with a reciprocal motion, a horizontal comb circle with the pins arranged in rows pointing upward around its outer periphery, a traveling comb working between the nip and the comb circle, and a pair of horizontal drawing-off rollers laid along the outside of the circle. The relative position of these parts is shown in the diagram, where *A* indicates the back rollers of the gill box; *B*, the fallers; *C*, the nip (the full lines indicating its back position and the dotted lines its front position); *D*, the carrying comb; *E*, the comb circle; and *F*, the drawing-off rollers.

Twenty to thirty cans containing the prepared slivers are grouped behind the gill box, and the slivers pass through the feed rollers at a regular rate. The wool is dabbed down into the pins of the upper fallers as it emerges in a broad lap from the rollers, and is carried forward until, just as the front faller drops, the nip frame, pressing back with its jaws open, closes on the end of the lap close to the succeeding faller. Then, moving rapidly forward, it draws out a broad tuft of fibers, pulling them through the pins of the fallers. A rod sweeps down and severs the connection between the tuft and the wool remaining in the fallers.

The jaws of the nip, as the latter reaches the dotted line, are opened; and the carrying comb *D* (rising a little and then moving forward) carries the tuft (lightly resting on the tips of its pins) and deposits it with its forward end on to the pins of the comb circle *E*, the hind part stretching outward and forming a fringe on the outside of the pins. The dabbing brush *G* descends and presses the tuft well down into the circle pins.

The work is continuous, tuft after tuft being brought in rapid succession and deposited on the circle, the nip and carrier making about forty travels a minute. Meanwhile, the comb circle moves slowly round from right to left, about two revolutions per minute, carrying the tufts with their protruding fringe toward the drawing-off rollers *F*, which close upon all fibers long enough to come within reach of their grip and draw them out through the circle pin in a continuous sliver. A cut-off knife pushed down in front of the rows of pins keeps short fibers out of the top. The short rejected fibers (noil) are carried forward in the circle until a point is reached where a series of thin steel plates are inserted between rows of pins. These lift out the shorts and drop them into a can.

To prevent the fringe of wool hanging from the comb circle from interfering with the working of the carrying comb, and also to turn the points of the fringe toward the drawing-off rollers as the circle approaches the latter, a current of air from a small fan is employed. The fan outlets terminate in wide, smooth, and thin mouthpieces turned in the proper direction for the work required, and valves are fitted by which the strength of the current may be regulated to suit the work, as some materials are much heavier than others. Some combers, however, prefer to have a traveling apron to turn the fringe in the right direction.

In combing mohair, two pairs of drawing-off rollers are sometimes used, the first pair being set back from the circle, drawing off a good top free from kemp, and a smaller pair set close up, drawing off an inferior top called a "backings" top. The procedure with long camel's hair is very similar, but here the long fibers are coarse and strong, and the shorter fibers are much finer and softer.

The following are combing details for long luster wools:
Brass, 3 by 1 in. Set-over, 2 in. Five rows of pins.

No. of rows	Pins per inch	Counts of wire	Length of pins
1	24	13/22 flat	2½ in.
2	23	14/20 flat	2½ in.
3	20	18's round	2½ and 2¾ in. alternating
4	18	17's round	2½
5	16	16's round	2½

Carrying comb: 1 row of pins, 16 per inch
Length of pins, 4½ inches
Width of comb, 14½-16 inches
Fallers: 3 rows of pins: 1st, 22 pins per inch, flat
2nd, 20 pins per inch, round
3rd, 20 pins per inch, round
Other details: Pitch of faller screw, ¼ in.
Back roller circle, 11 in.
Drawing-off roller, 1½ in. diam.
Circle, 48 in. diam.

The following figures are taken from the diagram, in which the drives may be easily followed.

Revolution of large circle:

$$\frac{190 \times 28 \times 15 \times 20 \times 20 \times 17}{60 \times 20 \times 38 \times 35 \times 347} = 1 \text{ r. p. m.}$$

Surface speed:

$$1 \times 48 \times 3\tfrac{1}{2} = 148 \text{ in. per min.}$$

Speed of faller screws, nipper jaws, and carrying comb:

$$\frac{190 \times 28 \times 14 \times 22}{1 \times 60 \times 10 \times 72} = 38 \text{ swings per min.}$$

Output of drawing-off rollers:

$$\frac{190 \times 28 \times 6.25}{60 \times 1} = 554 \text{ in. per min.}$$

and to a natural tendency on the part of the longer fibers to assume a spiral attitude, in spite of repeated efforts to lay them straight. Further, there is generally a certain amount of vegetable matter adhering which it is necessary to remove, as otherwise it would pass forward into the yarn and cause trouble at a later stage. The combing process has, therefore, for its primary object the removal of all knots, short curly fibers, shives, etc., and incidentally, the stretching of the longer fibers so as to take out the natural tendency to curl and to cause them to bed into a smooth, compact sliver.

The nip or Lister comb is the machine best suited to long wools, in spite of its low production when compared with the popular Noble comb. It still maintains a foremost position for the best grades of luster wool, and is preferred whenever a very clean top is the first consideration.

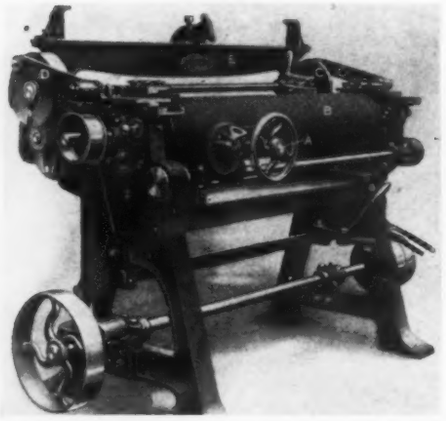
The successful working of this comb depends, almost entirely, on the adjustment of the parts to work in harmony with each other. It is a work of great nicety, requiring a thorough knowledge of the various connections and a systematic method of carrying it out. The nip must first be set so that the plates close exactly at the back center before any forward movement is made, and open exactly on reaching the front center. Having done this, the nip must reach the back center and close on the projecting lap of wool near to the front faller when the latter has half its thickness to travel before it drops. This will insure all the tuft behind the nip being thoroughly cleaned. The plates themselves must be adjusted to fit nicely to each other across their whole width, so that the tuft is drawn out evenly all across; and, on the other hand, they must be made sufficiently easy to prevent the wool being cut. The dividing rod must be set to sever the connection at the proper time.

The carrying comb must be adjusted, and for that purpose must be drawn out of gear and worked by hand until satisfactorily set. It is required to meet the nip just as it opens; and, on reaching the comb circles, its pins must go half-way or more over the circle, in accordance with the amount of noil to be taken out. The circle dabbing brush is speeded to dab twice for each movement of the carrying comb and must be well up when the latter deposits the wool, or it will knock it from the pins.

DON'T NEGLECT THE FLATS!

Yearly use of top-flat grinding machine recommended

By Robert Burgess



Machine for grinding top flats. In use, it should be placed so that it will be as free from vibration as possible—usually over a floor beam and close to the outside wall.

WHILE many factors contribute to the successful manipulation of the cotton fiber in the carding process, the essential element is the card clothing. The clothing on the cylinder and doffer is usually well taken care of as far as grinding is concerned, but the same cannot be said for the top flats.

Much ingenuity has been displayed and much time has been spent by the builders in equipping the card with a top-flat grinding apparatus; but, even with the very best kind of equipment, it is not possible to secure first-class results unless conditions under which the work is done are in keeping with the exacting requirements of the operation. Vibration is the controlling influence on the quality of work that the top-flat grinder will do. An amount of vibration that has little or no effect on the cylinder and doffer, or on the grinding apparatus connected with them, may easily produce a situation that will prove unsatisfactory for the grinding of top flats. This vibration is a varying factor, changing with the actual working conditions in each mill and with practically no plant free from it. It is hardly fair to expect good grinding results under poor working conditions.

While the top-flat grinding apparatus is a part of the regular equipment of the card, the writer questions whether the originators of this device ever intended that this method of grinding the flats should be the only treatment they were to receive. As a sort of temporary grinding, it does meet certain requirements, but it does not keep the flats in the best possible condition. This equipment provides no means by which tests can be made of the condition of each flat. It is not good judgment to take the position that they are all ground in the same manner, and that, therefore, they must all be alike.

The recommended procedure is to take advantage of the precise testing and grinding which is possible with a regular top-flat grinding machine, as contrasted with the apparatus that is part of the card. About once a year the flats are taken from the card, given a thorough machine grinding, and carefully tested for evenness from end to end and for uniformity of all flats.

This machine grinding is the only grinding the flats receive. The points of the wire are then kept in good working condition by a regular system of burnishing. A burnishing brush is not a part of the regular equipment of the card but is very useful if employed properly. Careful setting is a necessity. In the hands of a careless workman, an improper setting may damage the clothing foundation; and there is no doubt that this possibility of damage is the reason why a brush is not part of the regular equipment of the card.

Flats treated in this manner will strip and brush more easily, will keep free from lint, and will always be in condition to give the best possible service.

Yearly grinding is in keeping with the sound practice of giving each card a thorough overhauling once a year. The card is completely taken down, parts cleaned, bearings realigned, and all parts readjusted and reset.

Problems in steam generation discussed at Midwest

POWER CONFERENCE

POWER economics, classification of coals by use value, power-plant techniques, power transmission to machinery, and fuel economy and controls were among the subjects of interest to textile power-plant and mill engineers discussed at the Midwest Power Engineering Conference, held in the Palmer House, Chicago, April 20 to 23. Coincidentally with the conference, the latest developments in power generation, transmission, and control, and related operations were displayed by 110 exhibitors at the 7th Midwest Power and Engineering Exposition, held in the International Amphitheatre. Abstracts of some of the more important papers which were particularly pertinent from the viewpoint of textile engineers follow:

At the session on power economics, Dr. C. F. Hirschfeld, Detroit Edison Co., outlined the present trend in research in the power field. The outstanding development in steam power generation in the last few years, according to the speaker has been in the increase in steam pressure and temperature; pressures of 1,200 to 1,400 lb. and temperatures of 850 to 950° F. are no longer regarded as excessive. As a result, it is necessary to develop metals and alloys which will retain sufficient strength under these and the still more severe conditions which it is hoped to adopt in the ever-continuing effort for greater thermal efficiency. There is need also for inexpensive materials which can be used in turbine blades; the subject of caustic embrittlement, scaling, and boiler corrosion at high temperatures and pressures needs further study; room for improvement still remains in respect to maintenance of more nearly constant superheat temperatures. In Europe boilers of new and radical types have been produced, and there is growing interest in these in this country. Fuel-burning equipment and furnace design have kept pace with improvement of boilers, perhaps the outstanding development in stoker practice being the introduction of zoned air control as applied to the underfeed stoker; now there is appearing in experimental form the water-cooled, underfeed stoker. Research has developed uses for the pulverized fuel ash recovered from flue gases, and it is not unreasonable to believe that a similar attack may solve the problem of sulphur disposal. Another field for research is in the field of lubrication, for example, in the development of non-flammable lubricants. The condenser needs further study; rehabilitation of old plants is a live subject; there is room for improvement of insulating bushings; the phenomenal progress of the diesel is encouraging efforts to build small, self-contained, practically automatic, high-temperature, high-pressure steam plants.

Interchange of Power

Speaking on the interchange of power and steam between industries and public utilities, William A. Hanley, Eli Lilly & Co., advocated a plan whereby the utility will sell to industrial plants and excess power generated will be returned to the utility. Such interchange would eliminate many stacks and inefficient small plants and would improve the smoke situation. Ordinarily, exchange is feasible with industrial plants located up to 2 miles from the utility. Contracts between the utility and the industrial require a sliding rate schedule for delivery in each direction, provide for maintenance of lines, include penalty clauses for service failure, provide adjustment for changes in fuel price, allow for a power-factor clause, protect the utility against a mandatory change in rates, give each party control over its own equipment, and provide for amortization of special equipment during the life of the contract. In the discussion of Mr. Hanley's paper, Verne Alden, Stone & Webster, suggested the advantages of supplying two to a dozen industrial plants with steam and electricity from one power plant.

Use Value of Coal

In a paper on the use value of coal for steam, C. C. Wilcox, Studebaker Corp., and J. W. Nash, Bendix Products Corp., stated that in addition to fuel cost f.o.b. plant, the following cost items affect the use value: Unloading and handling, crushing, stock-pile loss, refractory loss, ash-handling, tube slagging, dust sifting loss, damage to heat recovery equipment and breeching, back smoking, reliability of source, multiplicity of sources, reciprocal trade agreements, and evaporation obtained. Fuel cost is usually the largest single item of cost and may be given more than its important weight. Thus, the use value of even a refuse fuel may be so low on account of the incidental costs that its burning becomes more a matter of disposal than of steam generation; therefore the operating engineer's opinion and decision should be obtained before a contract for fuel supply is consummated. Evaporation obtained receives the lion's share of attention in selecting coal, and justly so; but in arriving at a final answer all of the incidental costs referred to above must be taken into consideration as an addition to the per ton cost of the coal. A good system of cost accounting is necessary if the operator of the plant is to be able to tell the relative importance of these various items.

"Good results in water conditioning are obtained only by the continuous and rightly directed efforts of the plant," stated R. E. Hall, Hall Laboratories, Inc., in the introduction to his paper on water conditioning for high-pressure steam generation. Coincident with the improvement of steam-generating equipment there has been great progress in water conditioning, but there are still problems to be solved. Because of accelerated chemical activity at higher temperatures, in high-pressure operation thorough deaeration of water and carefully controlled caustic alkalinity are essential to prevent corrosion. Addition to water leaving the heaters of a substance, preferably sodium sulphite, which will combine with any remaining oxygen will prevent attack of the metal, a positive sulphite test of about 30 p.p.m. on the boiler water being advisable. Foaming can be readily combated with well-baffled steam drums, continuous blowdown, and proper conditioning of the water; however there may still be mechanical carryover, which will necessitate addition of baffles on older equipment, addition of circulating tubes, or scrubbing of steam with feed water. Scale formation

and boiler cracking are two other difficulties which can be minimized by proper conditioning.

In a paper on the coordination of boiler auxiliaries, A. F. Spitzglass and G. K. O'Connor, Republic Flow Meter Co., asserted that the most difficult problem in the application of combustion control instruments is the proper coordination of the fuel-burning auxiliaries to obtain accurate and efficient control of steam pressure, combustion, and furnace draft. The two most important characteristics of boiler auxiliaries in regard to their effect on the control situation are range and flexibility. The auxiliaries must be of adequate capacity to satisfy both the maximum and the minimum load demands, and must be sufficiently flexible to cover the entire range at a time rate comparable with the rate of boiler load changes. A combustion-control system regulates three variables—steam pressure, combustion, and furnace draft. In gas-, oil-, and pulverized-fuel-fired boilers, steam pressure is controlled by changing the fuel supply; in stoker-fired boilers, by changing the air flow. Combustion is controlled by changing either the fuel or air to maintain the desired fuel-air ratio. With gas, oil, or pulverized fuel, the ratio is controlled by changing the air flow; with stokers, by changing the stoker speed. Furnace draft is controlled by maintaining a balance between forced draft and induced draft. With pulverized-fuel-fired boilers on the storage system, the Ward-Leonard system for control of fuel feeders is widely used, and has the advantages of accuracy, flexibility, and speed range. With direct firing, the storage lag of the pulverizer makes control of the fuel input more difficult. Effects of lag can be overcome, however, by primary air control, by mill speed control, or by overfeeding on load pickup and underfeeding on load drop. As a rule, few problems are encountered in controlling the fuel input to stoker-fired boilers, fuel input being controlled by changing the stoker speed. In any boiler-control scheme, the air flow can be controlled by changing the induced draft, and the furnace draft can be controlled by changing the forced draft, or *vice versa*. Both methods are used successfully. Either forced or induced draft can be changed by damper control, fan-speed control, or both.

Superposition

Superposition, the addition of high-pressure, steam-generating equipment which exhausts into the lower-pressure system of existing turbine generators was discussed by Frank Clark, Stone & Webster Engineering Corp. Superposition is not the answer to every problem, but must be studied for every case in the light of other methods available, such as improving efficiencies by minor changes in existing equipment or heat balance, increasing capacities of existing equipment by improved methods of combustion and by modernization of steam generators, and additions to existing equipment either at present or increased operating pressures.

In general, plants to which superposition will be found adaptable vary in age from 10 to 25 years. Possible capacity increases up to 50% can be obtained, and efficiencies bettered by as much as 40%. Superposition is particularly attractive in plants where installed turbine capacity is in excess of boiler capacity, and has great possibilities in cases where condensing water is limited.

Among the other papers of interest to textile men were those on modern group drives, by W. R. Clendinning, Engineering Power Transmission Council, and on direct motor drives for machinery application, by F. E. Butterfield, Commonwealth Edison Co.

With higher steam pressures

CONTROL OF

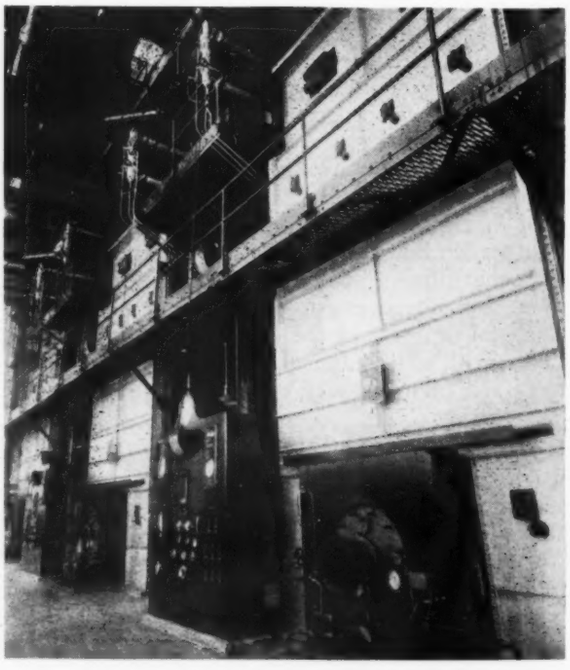
By N. T. Pef

SOME of the ill effects of incorrect boiler-water treatment are scale, corrosion, embrittlement, and dirty steam. It is only during the last few years that chemists have succeeded eliminating all of these bad conditions, and, no matter how competent the boiler room operatives may be, the boiler-water problem is of sufficient importance to require the advice of a chemical engineer specializing in this field. When scale exists in a boiler, it is apparent to every one; but priming, corrosion, and embrittlement may be present without being evident unless closely watched. Therefore, the fact that there is nothing visibly wrong with the boiler water is no proof that conditions are right. If a scientific investigation by a water chemist has never been carried out, such a survey should be made, even though no bad symptoms of any kind are apparent. Once the conditions have been determined the services of a consultant will be required only at critical periods.

As a rule, the water condition of a low-pressure boiler will not lead to any serious consequences; and the problem should not receive attention out of proportion to its importance. But with increasing pressure, temperature, and rating, the water question becomes increasingly important.

The First Step

Other things being equal, the magnitude of the feed water problem is in direct proportion to the amount of make-up water used; and the first step is to make sure that the amount of raw water fed to the boiler is the minimum for the conditions of operation. The make-up is minimum when it equals the condensate that cannot be returned to the boiler. To verify this point, one must estimate or calculate the amount of non-returnable steam and balance this against the actual amount of raw water



BOILER WATER

assumes increasing importance

used. The ideal case is the closed system, in which all of the condensate is returned to the boiler. Under this condition it is possible to reduce the make-up to less than 1%, which is the leakage. Ordinarily, textile power plants do not operate on the closed system, because of the large amount of process steam used, but they should attempt to approach the closed system by reducing leaks to the minimum and by returning as much as possible of the condensate to the boiler.

Boiler compounds are widely used, and in some cases —as in low- and moderate-pressure boilers operated at normal ratings with a small amount of raw water—they afford the least expensive method of treatment. However, they should be employed with discrimination. Some years ago a noted chemist made tests on some twenty of the many boiler compounds on the market and grouped them under three general headings; viz., effective, worthless, and dangerous. Certain of the most effective compounds consisted mainly of lime, caustic soda, and soda ash, but sold at several times the market price of these chemicals. It is usually considered that the best compounds are those producing both a chemical and a mechanical action, various organic materials being added to get the latter effect. Tannin, dextrin, and various glucosides and glucosates are among the organic chemicals used in water treatment. The two things to remember in connection with boiler compounds are: (1) As a general rule, compounds are economical for small boiler houses, or where the raw water is of good quality or represents a small portion of the total feed, and where the pressure, temperature, and rate of driving are not high. (2) The compound should be bought only from a reputable firm; no unknown substance should be fed to the boiler, but the ingredients should be known and they should be suited for the water.

Frequent Tests Necessary

That a boiler is free from scale and that it receives a clear mark from the boiler inspector should not be taken as a criterion that the treatment is correct. For one thing, the treatment may be overdone, it may not be the most economical, and such conditions as corrosion, embrittlement, and unclean steam are not always easily detectable until their cumulative action has done its injury. The question of what treatment is best or whether the present method of treatment is correct can best be decided with the help of a water chemist. Some reputable makers of boiler water chemicals, upon receipt of a sample of water will, free of charge, analyze the water and advise the treatment best suited. After the treatment has been decided upon, the water should be tested frequently to make sure that the desired results are being obtained. The apparatus for this testing is inexpensive, and the method of testing is simple enough to be performed by the power plant operator.

To prevent scale in the boiler the correct relation should be maintained between the alkalinity, causticity, and hardness of the water. Alkalinity should be about twice the causticity, and causticity about twice the hardness.

The most effective method of combating corrosion is by making the feed water air-free. Deaerators are coming into general use as a means to that end. Sometimes satisfactory results can be obtained with the ordinary open heater, but care must be taken to maintain the temperature at 212° at all times, to have the heater well vented, and to have ample tray surface. If the exhaust steam is not sufficient to maintain the temperature at 212°, live steam should be used after being reduced. The water should be tested for oxygen, the Winkler method being most generally used.

Although the facts concerning embrittlement are not known, the preventive method advocated by Prof. Parr is generally accepted. All the cases of embrittlement were found with water containing an excess of carbonates over sulphates and, therefore, the preventive method consists of keeping the sulphates equal to, or in excess of the carbonates, depending on the pressure, equal for low or moderate pressures, and a ratio of 3:1 for pressures over 250 lb. The water is tested for carbonates and sulphates and whenever there is a deficiency of sulphates these are added, usually in the form of sulphuric acid or magnesium sulphate. However, this phase of water treatment should not be undertaken without the assistance of some qualified person.

If the water is properly treated, there should not be any difficulty with priming or foaming, unless the concentration of the boiler water is too high. The concentration that can be carried with any given operating condition should be decided upon by means of test and this limit should not be exceeded. As was pointed out in the April, 1934, issue of TEXTILE WORLD the installation of continuous blow down should be a paying investment. When a continuous blow down is employed, since the heat of the water is recovered, the concentration can be carried rather low, 50 grains per gallon or thereabouts. But with hand blowing, it might be more expedient to carry a concentration of ten times this amount. The thing to remember with hand blowing is that better results will be obtained with more frequent but shorter blows, and the blowing should be done during banking period or when the boiler is operating at low rating.

Effects of incorrect boiler water conditioning

SCALE—This results in lower efficiency and higher maintenance cost due to frequent tube turbining or replacement of tubes. Boiler availability is also lowered, which means higher capital investment in order to maintain a given load with the minimum of interruption.

CORROSION—This may be general or local and, if allowed to proceed, will ultimately so weaken the attacked part as to necessitate its replacement or patching up or even to the scrapping of the whole boiler.

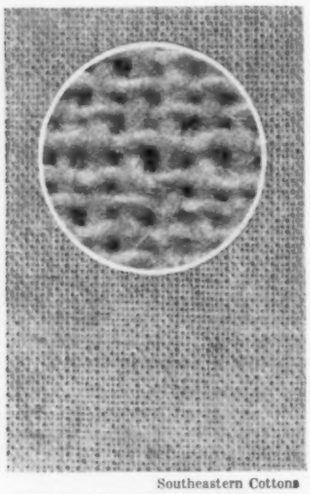
EMBRITTLEMENT—This rarely occurs but, at the same time, is the most serious consequence of improper boiler water conditioning; there are some cases on record where boilers had to be discarded after only a few years of service.

DIRTY STEAM—Incorrect water conditioning is always at the root of all priming and foaming; the solid matter carried by the steam damages valve seats and turbine blades, lowering the efficiency of turbines and engines and, on being deposited on heating surfaces, lowers their capacity.

STAPLE COTTON FABRICS

By John Hoye

PREVIOUS articles of this series, which began in January, discussed cheese and tobacco cloths, print cloths, fine plains, carded and combed lawns, clipped-spot lawns, organdies, airplane cloths, balloon or typewriter cloths, oxfords, pongees, voiles, scrims, beach cloths, and marquisettes. Many more fabrics will follow. The magnifications are 5½ times true size, which is about the average magnification of the pick glasses commonly employed by cotton men.



Southeastern Cottons

CLEAN OSNABURG
54", 36x31, 1.75 yd.

Osnaburg

Osnaburgs are plain-woven, coarse, medium- and heavy-weight cloths of low construction made of (1) waste cotton mixed with low-grade clean cotton, fabrics so made being called *P. W.* or *part-waste osnaburgs,* and (2) all clean short-staple cotton of low-grade stock, such fabrics being known as *clean osnaburgs.* When the goods are sold, either the term "P.W." (part-waste) or the term "clean" is stated. There are various qualities of each type turned out by different mills. Some mills produce clean osnaburgs as good as any of the coarse sheetings. Part-waste osnaburgs vary according to the kind and amount of waste put into them; and some mills make cloths which, because of the dirtiness of the waste used, are classified as *B-grade osnaburgs.* Many osnaburgs are used in the gray state for bags and for coating purposes. Osnaburgs are also made in tubular form for cement bags, etc., and are often woven with colored stripe and check effects and sometimes with slub yarns. Narrow widths with or without colored selvages are used for towelings. Many of the lighter weights and the clean osnaburgs are converted.

In appearance clean osnaburgs, as compared with ordinary carded cloths, have a dingy or off-color appearance and have more motes in them, but they are clean in comparison with the part-waste qualities. The latter are full of motes and dirt. Card waste is usually used. In bleaching, all impurities are bleached out; and the resulting cloth resembles a coarse-yarn linen fabric. When converted, osnaburgs are known as *linene, crash, cretonne,* etc.

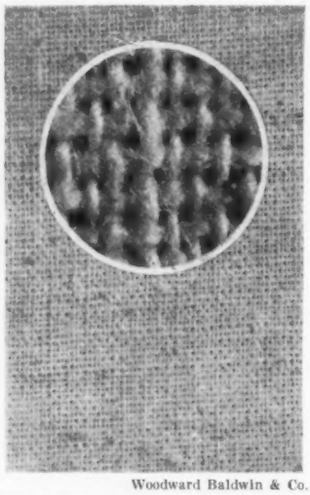
Heavier qualities are usually sold by ounces per yard; lighter weights, by yards per pound.

Widths	Constructions
28" 29" 30" 36" 38" 40" 50" 54" 60"	29x29 to 40x40 also up to 48x48
Warp Yarns	**Filling Yarns**
5½s to 14s	5s to 12s

Uses in gray: Bags, box-spring covers, mattress coverings, shoe linings, coverings for pipes, tire linings, bases for linoleum, imitation leathers.

Finishes used: Pocketing, linene (chased or beetled), elastic duck, mercerized, napped, canvas, printed, printed-trousering, cretonne, dyed- or printed-crash.

Uses in finished state: Draperies, upholstery covers, play suits, suitings, work shirtings, linings, towels, golf knickers, slacks, summer coats, summer couch and seat coverings, coveralls.

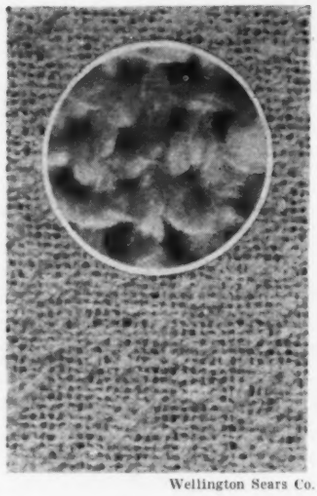


Woodward Baldwin & Co.

PART-WASTE OSNABURG
36", 40x28, 7 oz. P.W.

Examples of Standard Gray Constructions

Clean osnaburgs:	*Part-waste osnaburgs:*
38" 36x32 3.25	28" 34x36 4.40
38" 38x32 2.85	28" 36x36 3.33
36" 32x28 3.90	29" 32x30 3.33
38" 32x28 2.85	30" 32x28 7 oz.
36" 32x28 3.60	30" 40x30 7 oz.
	36" 36x28 3.00
Slub-yarn:	36" 36x32 3.25
38" 32x28 3.25 clean	36" 32x28 3.90
38" 32x28 3.00 clean	36" 40x38 7 oz.
38" 32x28 2.85 clean	36" 32x28 7 oz.
39" 16x16 2.35 clean	38" 36x32 2.85
38" 32x28 3.25 P.W.	36" 38x32 2.85
	36" 32x28 2.85
Part-waste towelings:	40" 40x28 2.05
17" 40x30 4.00	40" 32x28 7 oz.
17" 32x28 6.00	40" 32x28 2.28
18" 36x32 6.00	40" 40x30 1.72



Wellington Sears Co.

RATINÉ
38", 18x18, 2.55 yd.

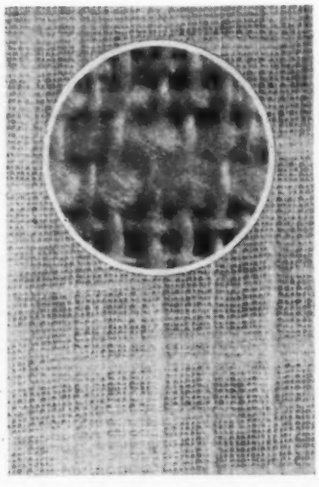
Ratiné

Ratinés are also known as *epongé* and *sponge cloths.* They are loose, plain-woven cloths, having a rough appearance, full of nubs or knots. The effect is obtained by the use of special ratiné yarns composed usually of one coarse, heavy yarn and two fine yarns. The coarse yarn and one of the fine yarns are twisted together to form a ply yarn. They are fed at different tensions, the heavy yarn being supplied to the twisting action at a faster rate than the fine yarn. This causes the heavy yarn to collect and form a wavy or loose spiral around the fine yarn. The other fine yarn is then twisted with this ply yarn to form a complete ratiné yarn which has a nubby or knotty effect throughout. In the cheaper qualities, ordinary warp yarn is used with ratiné filling. Ratiné yarns are also used for stripe and check effects in crepes, voiles, etc.

Dyed in plain shades or printed. Given mercerized or plain finish. Used for dresses, beach robes, coats.

Examples of Standard Gray Constructions

36" 20x20 2.50 ratiné yarns in warp and filling
37" 36x20 3.00 ratiné in filling, ordinary yarn in warp



SLUB-YARN OSNABURG
38", 32x28, 3.00 yd.

ATTRACTIVE COATING

By J. M. Masson

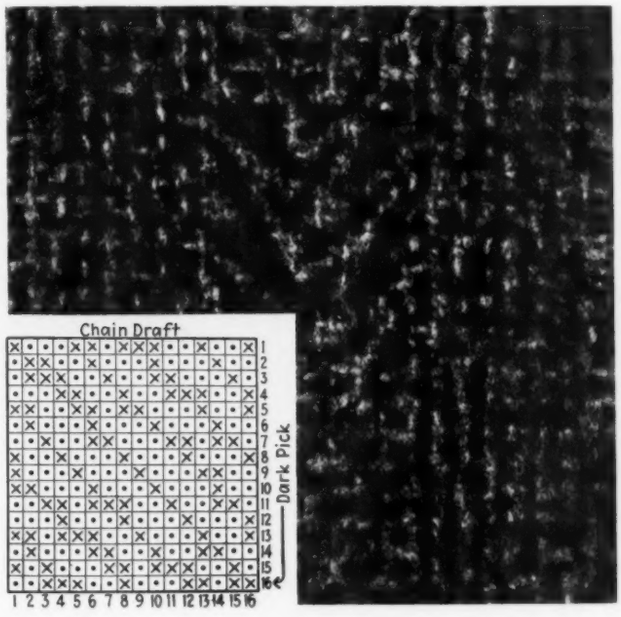
Suitable for men's overcoats; adaptable to women's

THE attractive woolen fabric illustrated herewith is suitable for men's heavy overcoating and, through the use of finer yarns to produce a lighter-weight fabric, could be adapted to women's coatings. It could also be woven in weights suitable for men's spring wear. The weave is of the "double plain" variety, but is fancy in character and, in the writer's opinion, new and original.

Even for men's overcoatings, however, the writer would recommend a finer wool, a lighter weight, and a softer handle and finish. The wool used in the sample shown was a high-grade C super. The yarns used were spun to 2.6 typp ($1\frac{5}{8}$ run, $8\frac{2}{3}$ cut) both warp and filling. The layout of the fabric was 2,760 warp ends dressed one black and one white for the figure or central part of the design and two black and two white for the stripe part. The filling pattern was the same as that of the warp.

Any experienced woolen mill can reproduce this figured double-plain cloth. The novice, however, when starting up such a weave, should give attention to putting the filling colors in the correct shed or bar; but if the design does not come out as shown in the photograph, it is necessary only to advance the pick one bar.

No special problem will present itself in the finishing, although it should be stated that the fabric illustrated was a trifle overshrunk in length, with the result that the cloth was made somewhat hard and boardy. However, as the goods were to be rainproofed, a firm handle was called for. The first pieces fulled must be watched carefully to see that the goods are not shrunk too much in length.



"WHEN I RECEIVE YOUR SILK"

Must be the answer to the question "How soon can you mount looms?"

By F. J. Luettgen
Textile Consultant, Stewartsville, N. J.

WHEN solicited for commission weaving, it is not uncommon for a potential customer to inquire, "How soon can you mount looms?" With the numerous conversions from one quality to another, the most logical answer is, "As soon as our twisting department will permit."

Several years ago this answer would have been accepted; but today the answer must be, "As soon as I receive your silk." This is the only appropriate reply if the manufacturer wishes to obtain commission work and be assured a possible chance of making a profit.

In most mills very little consideration is given the twisting department as a factor in making a profit or taking a loss on an order. A twisting department that can with economy convert one quality into another without any lost motion is an asset not often appreciated by the manufacturer.

The usual procedure in the majority of twisting departments is to find the harness most suitable for the new quality and then await the warp. When the warp is received, it is twisted and then the alterations are made according to requirements. For example: The mill receives an order to mount 40 looms on georgette 45/2 reed. It finds it has 40 sets of harness available, but with a 40/2 reed. Nothing is done with this order until the silk arrives from the throwster and the warps are made. This is a delay of about two weeks. Then the twisting department will set about to twist the warps. After this the alterations will begin, such as entering ends on both sides of the harness, adding heddles, and changing the reed—another three to four weeks wasted. This method is cumbersome and obsolete.

In the modern twisting department this procedure would be practically reversed. If the department received an order such as the aforementioned—that is, to convert a 40/2 into a 45/2—it would go about it in the following manner:

After it had found the 40 sets of harness, it would immediately add the additional heddles required and then turn them over to an operator to fill by entering from bobbins. The thrum of the harness would then be opened and fastened to the frame with clamps around a rod. The old reed would be cut off and a new reed put on. This completed, every shaft would be inspected to see if any individual ends were out. After these ends were put in, the harness would be tied up and set aside to await the coming of the silk.

With this method applied in the twisting department, all alteration to the 40 set of harness would be completed long before the silk arrived. It is obvious that the method would save from three to four weeks over the old method. Such a twisting department, properly managed, will become the pivot upon which all other departments will have to depend.

TEXTILE WORLD ANALYST

Overproduction and price weakness in several textile divisions

First-Quarter Textile Activity Up: TEXTILE WORLD's index of textile mill activity for the first quarter of 1936 shows a gain of 9% over that for the corresponding quarter of 1935, and 7% above "normal," which in this case is assumed as the eight-year average, 1924 to 1931 inclusive. Cotton, wool and rayon were all up on last year; silk was the only fiber to show a decreased use for the quarter under review.

THE textile industry is on familiar ground once more. Several of its branches are flirting with over-production, with the inevitable weakness resulting in price structures. There are exceptions to this rule, but by and large it can be said that textile mill activity thus far this year has been maintained at a higher rate than demand justified.

The most serious weakness is in staple cotton fabrics where price possibilities have practically disappeared, and losses seem to be assured on business taken on current quotations. Attention was drawn to the seriousness of this situation in these columns last month but the degenerative process in manufacturing margins has continued.

The only encouraging aspect of the situation, as we go to press, is that recognition of the problem — even though belated—seems to be appearing. The need for curtailed schedules and for a firmer attitude on prices is at last securing general appreciation. Something may be done about it.

Flash reports for the various branches of the industry follow:

Cotton: The story has been told above. The shrinking in manufacturing margins is shown dramatically in Table I which represents the difference between average cost of clean cotton per lb. and average selling price of a representative group of print cloths. The April average has established a new low for the TEXTILE WORLD's series of margins, which go back to August, 1933. Fortunately the picture in fine goods is entirely different. There, the adjustment of production to demand has been effectively carried out, as noted by Dr. C. T. Murchison in a talk last month.

Wool: Distinctly better sentiment was evident in wool goods in April and there were some tangible evidences of improvement. This followed a period when buyers had seemed to disregard basically stable influences. Raw wool in Boston has been quiet but steady. Women's wear fabrics are opening for fall, and fleece coatings promise to be popular. Clothiers have gone on the road with fall lines of men's suits, somewhat advanced in price from previous lists. Market authorities estimated that April began with 42,000,000 linear yds. of unfilled orders on wool mills' books, a nest egg equivalent to 13 weeks' production at the then current rate.

Rayon: The market continued steady through April. Ordinarily sales would have eased, and the activity at this time is due partly at least to the strong interest in rayon taffetas which has spurred yarn demand accordingly. Indications are that April volume may equal March in viscose yarns; some firms report that in acetate April went ahead of March.

Silk: After a month of quite spirited fluctuations, raw silk ended April with prices approximately 2 to 4c. below those of end-March. Demand from weavers for the 20/22s had picked up noticeably due to increased production of the triple-sheer georgettes and some importers found difficulty in meeting spot orders. Hosiery manufacturers did not show the expected interest, due to curtailed production in certain districts. Movement in silk fabrics has been backward except in scattered specialties.

Knit Goods: Hosiery prices appear to have achieved some sort of stability after their price cuts of end-March. Demand was slower than normal in April, while output was probably on the high side. . . . In underwear, demand centered on summer goods, with special interest being evident in the supporter shorts which are a carryover from last summer. Advance buying of fall 1936 underwear continues very slow. The outerwear situation is moderately satisfactory. Swimsuit volume started late, however, and there is some doubt as to whether it will make up for the delay. At present, demand is fairly active, with prices steady. Sweaters and miscellaneous lines are in fairly good position.

With the exception of raw cotton, all TEXTILE WORLD's price index numbers for April showed a loss. Adverse market conditions are shown by recessions in the cotton yarn and cloth indices in the face of a strengthened raw cotton position. The weakness which developed in wool prices in late March, due to inactive trading, continued during April and indices for the month showed the first reaction to the rise that started in April, 1935.

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933....	21.4	June, 1935.....	16.5
October, 1933...	19.1	July, 1935.....	15.2
January, 1934...	18.4	August, 1935...	17.1
April, 1934.....	17.6	September, 1935	17.9
July, 1934.....	15.5	October, 1935...	17.7
August, 1934....	16.6	November, 1935	16.4
September, 1934.	18.6	December, 1935	16.2
October, 1934...	17.4	January, 1936...	17.2
November, 1934.	15.8	February, 1936..	16.5
December, 1934.	16.2	March, 1936....	15.5
January, 1935..	16.2	April, 1936..	14.3
February, 1935..	16.0	Apr. 8.....	14.7
March, 1935....	15.9	Apr. 15.....	14.3
April, 1935.....	16.1	Apr. 22.....	14.0
May, 1935.....	16.0	Apr. 28.....	14.2

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933.....	23.5	June, 1935.....	14.5
October, 1933...	20.0	July, 1935.....	14.3
January, 1934...	18.3	August, 1935....	15.3
April, 1934.....	15.9	September, 1935	15.4
July, 1934.....	14.7	October, 1935...	15.8
August, 1934....	15.3	November, 1935	16.3
September, 1934.	15.6	December, 1935	16.3
October, 1934...	14.6	January, 1936...	18.4
November, 1934.	13.5	February, 1936..	17.5
December, 1934.	13.5	March, 1936....	16.3
January, 1935...	13.5	April , 1936.	15.6
February, 1935..	13.9	Apr. 8.....	15.9
March, 1935....	14.4	Apr. 15.....	15.9
April, 1935.....	14.1	Apr. 22.....	15.4
May, 1935.....	13.8	Apr. 28.....	15.1

Textile World's Price Index Numbers

STARTING with January, 1936, TEXTILE WORLD has revised its price index numbers to a 1923-25 base, to correspond with current statistical practices. Those who wish to continue with indices based on July 1, 1914, for chart purposes or otherwise, can secure conversion factors to change the new figures to the old by writing TEXTILE WORLD, Statistical Dept., 1427 Statler Bldg., Boston, Mass. Figures on cotton manufactures, Aug. 1, 1933 to Jan. 6, 1936 include processing tax.

Date	Cotton Index Numbers: Cotton	Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Silk Index: Raw Silk
1923-25 average	100	100	100	100	100	100	100	100	100
1930 average...	50	61	61	72	58	61	72	90	109
1931 average...	32	58	46	59	46	49	59	71	32
1932 average...	24	37	37	60	36	40	52	57	21
1933 average...	39	56	55	50	53	59	62	80	21
1934 average...	61	67	70	62	63	70	75	91	17
1935 average...	60	68	67	69	56	58	70	88	22
July 1935.....	61	68	65	69	56	59	70	89	20
Aug. 1935.....	58	68	66	69	56	59	70	89	23
Sept. 1935.....	55	66	68	69	58	60	70	89	25
Oct. 1935.....	57	68	68	69	60	61	73	92	27
Nov. 1935.....	60	70	69	72	62	65	75	92	27
Dec. 1935.....	60	71	69	72	64	66	76	92	26
Jan. 1936.....	48	67	63	68	67	73	75	93	26
Feb. 1936.....	42	62	58	67	72	81	77	93	24
Mar. 1936.....	42	61	57	66	73	81	77	93	23
Apr. 1936.....	43	60	55	64	68	75	76	90	22

KNITTING AND MORE

Philadelphia Show this year demonstrated processes from cocoon to finished garment

Story of the conventions is told on pages 74 and 75, this issue.

THE Knitting Arts Exhibition has become something of a textile institution far broader than the boundaries of the knitting arts proper; and the 32nd annual affair, held as usual at the Commercial Museum, Philadelphia, during the week of April 20, demonstrated processes from the reeling of cocoon silk to the finishing of fabrics and garments. Although yarn manufacture was confined largely to silk and rayon throwing, the processes of cotton and wool spinning—and, most particularly, staple-rayon spinning—and even, we may add, glass spinning—were represented by a profusion of the yarns themselves. There was also a bountiful number of winders, yarn conditioners, cutters, sewing machines, labeling machines, humidifiers, electrical controls, and what-not.

Glass yarn was an unannounced feature of the show. It arrived wound on tubes for experimental purposes (experimenting at an exhibition is some indication of confidence in one's product) and it left in the form of knitted fabric. The yarn was treated at the show in standard conditioning equipment and was knitted on standard latch-needle flat machines and leaded spring-needle circular machines by men who had never seen glass fiber before. Skeptics were present, but all admitted the possibility that the show was a milestone in the development of glass textiles.

THE LARGEST CROWDS

DURING the entire week the largest crowds were usually gathered around four exhibits. One of these was the demonstration of a 24-section full-fashioned hosiery legger, naturally the most impressive piece of equipment in the show.

Another was a demonstration of several single-head, full-fashioned hosiery machines. It is the third year that it has been difficult for a late-comer to get near these interesting machines, but this time there was an added attraction—three of the single heads were turning out single-unit stockings, one by widening out to make a pocket or seamless-type heel, one by holding the instep loops with a special comb or bar while the heel tabs were knitted (the tabs to be later looped to the soles), and one also by holding the instep loops with a special bar but permitting the heel tabs to be topped on the needles and the stocking blank completed without extra looping. The topping on the latter machine is facilitated by a split needle bar, and it is believed that the stagger system on which the single heads are operated will render the time required a negligible factor.

The crowd third in size was around the electrical "jacquard," demonstrated as applied to a two-bed flat knitting machine producing rib. A variety of intricate designs, merely painted on copper sheets, were fed in succession to the design attachment; and visitors watched these designs reproduce themselves in the fabric without any intermediate layout of design fields or the punching of cards. (Described in the April issue of TEXTILE WORLD, page 127.)

The fourth largest crowd was around a demonstration of improved cocoon reeling, a process seldom seen in this country.

OUTERWEAR AND UNDERWEAR

ALTHOUGH the largest crowds were around the more spectacular exhibits mentioned, it is probable that there were just as many dyed-in-the-wool mill men in the smaller crowds around some of the other, equally important, new machines. One of these was the new pattern-rib knitter which can produce jacquard-type designs on the dial to assure elasticity or can produce the same pattern on both face and back of the fabric. Another was the latch-needle body machine which feeds its yarn under stroboscopic control, measures its stitch by means of both needles and sinkers, and in addition carries a large number of feeds—23 on a 21-in. cylinder, for example. (Both machines, *T. W.*, March, page 110.)

Still another important advance in rib-body knitting was the automatic double-butt tuck machine having special swivel cams in the dial cap operating needles of different butt and latch lengths (*T. W.*, Feb. 14, page 99). This machine, which can be changed over to new patterns quickly, has lately been equipped with a new cam ring which permits the knitting of vertical float stripes on the cylinder. The individually operated spring-needle machine equipped for quick change-over of tuck patterns and 1x1 selection of floats, first exhibited two years ago, has been redesigned for more feeds (24 on 20-in.), giving double the depth of pattern and double the production.

The wire around the cloth of leaded spring-needle body machines has been replaced by a fixed metal ring which serves to clear the fabric from the needles uniformly around the entire machine and offers a mounting for the cloth wheels that leaves the front of the machine more accessible and visible. Also applied to this type of machine are a new presser stand of rigid construction and equipped with a graduating scale and locking screw, and a yardage counter which subtracts when the cloth is pulled down (*T. W.*, March, page 111). Stitch transferring for lace effects has been applied to the circular ribbers which produce designs from punched jacquard cards. A new electric stop motion for circular knitting machines operates at the spider and also at a lower ring, thus taking care of yarn breaks occurring anywhere between cones and needles.

An innovation among flat knitting machines of particular note was a fully automatic jacquard links machine producing three fabrics side by side, simultaneously, each of a different color and design. Selective racking is incorporated with selective jacquard patterning and knitting. Another flat links machine permits setting of stitch-locks to four positions, affords selective racking on front and back needle beds, applies automatic braking to the main shaft, allows turning up to six jacquard cards in one round, and provides for the making of a jacquard design while needles are on both beds. A quickly replaceable piano wire serves as the working surface in a new comb on another flat links machine, permitting loose knitting and reducing the danger

of yarn tearing on knicked or worn surfaces.

HOSIERY MACHINES

THE SHOW marked the return to prominence of the single-unit idea in the knitting of full-fashioned hosiery. In addition to the single-head methods already mentioned, two systems of German origin just announced were represented by samples on exhibition. In one of these systems combs rise behind the heel-tab needles to permit the pressing of those needles while the instep needles are held far enough away from the presser edge to prevent their pressing. After the tabs are completed, the special press combs are withdrawn and knitting continues on the instep and sole. Stockings so produced have to have the heel tabs looped to the soles after the knitting. The other new system knits continuously through high splice and sole, except for an open course in the splicing at the point where the heel tabs normally start. After the completion of the toe, the blank is transferred to another knitting machine known as a "heeler," which produces the heel tabs, the sole being cut from the high splice to permit the looping.

The single-unit machine with the split needle bar has been improved by the application of an automatic welt turner—that is, a bar of welt hooks which catches up the first course of stitches from the needles and returns them for the knitting-in of the doubled welt—and by the adoption of a frictionless draw motion.

The leading American builder of full-fashioned hosiery machines adheres to the legger-and-footer principle of knitting, and a 24-section legger of this make was the only multiple-head hosiery machine on exhibition. This embodied a number of improvements, including a controlled-humidity system for the humidors, a thermostatically controlled water-cooled friction shaft, and a reinforced-selvage spindle which permits the adding of a yarn to the selvage loops and also facilitates the use of an additional splicing in the heel.

As usual at a Philadelphia show, many innovations were seen among the exhibits of circular-hosiery machines. An excellent imitation of a rib hosiery top, having a greater elasticity than a true rib and giving garter-type support, was being made on a variety of half-hose, boys'-golf-hose, and infants'-hose machines by the laying-in of rubber every fourth course, the rubber being held at intervals of two or more wales and serving to gather the fabric together to produce a ribbed surface. English bottoms—that is, soles produced by floating the instep yarns across the entire sole and floating the sole yarns across the entire instep—were being made for the first time on needle-reverse-plating machines, without interfering with the changing of instep yarns during the knitting of the foot. To the 19-step wrap machine has been added 40-color equipment. The combination of 8-step wrap with 12-step reverse plating has now been applied to finer gage—3½ in., 220 needles, 48 gage. Progress toward coarser gages was also noted, a 5½ in. 10-gage automatic machine for lumberman's socks containing only 44 needles. Among the two-cylinder English-rib machines were seen jacquard models for children's anklets and boys' three-quarter hose, half-hose machines permitting full jacquard patterning on plain and purl stitch, and a double-feed machine knitting tipped heels and toes and reverse welts.

Two different makes of small ribbers for half-hose tops were equipped with four feeds and were laying in rubber on the fourth. One of these ribbers knits in the rubber at the beginning and end of the lay-in and changes to single feed for making the welt and loose course, facilitating transferring.

KNITTING-MILL ACCESSORIES

AMONG NEW knitting-mill accessories were flexible carriers for full-fashioned hosiery machines (*T. W.*, November, 1935, page 114), an ingenious machine for unraveling three-carrier hosiery and winding up the yarns on separate bobbins, a safe and versatile jig-saw-like cutter for lace, a weaver's knotter which pulls the tied thread taut and clips the ends close, several improved border knitting machines having increased versatility of gage, a new chain cutter for loopers, and an improved full-fashioned moistening box which extends over and incloses the conditioning trough to reduce exposure of the moistened yarn.

Two manufacturers of humidifying equipment featured improved models of the units shown last year. One of the systems, which consists of a unit humidifier placed at one end of a duct, has been fitted with air filters, an automatic control for the fresh-air dampers, and a heater. The other humidifier, with which heated water vapor is passed over cooling plates, has been redesigned to give a greater capacity and to deliver air at somewhat less than room temperature.

Exemplifying the most recent trends in industrial lighting were a high-intensity mercury-vapor lamp, and a combination circular mercury-vapor tube and incandescent lamp beneath one reflector (*T. W.*, Feb. 14, p. 98).

Hosiery manufacturers showed interest in a new automatic transfer machine which is described in detail on page 115; also in a semi-automatic device which forms hosiery envelopes from sheet cellulose film or glassine without the use of any adhesive; and in an automatic box-end printing machine which prints hosiery boxes and then stacks them or transfers them to a conveyor.

FINISHING AND SEWING

OF THE STRICTLY new finishing equipment, a machine for producing a suede finish on rayon, silk, cotton, and wool knit or woven fabrics, proved of particular interest. This machine produces a fine, dense nap or pile in stripes or over-all effects by subjecting the goods to the action of abrasive rollers which cut the surface filaments to about 10% of the thickness of the cloth; the amount of cut is adjustable, making it possible to handle a wide variety of

fabrics and to obtain many different effects. The manufacturer of the sueding machine also exhibited an improved type of cooling and conditioning machine for piece goods (*T. W.*, October, 1935, p. 109). A new bias collarette and strip cutting machine permits cutting of two or more strips directly from a roll, giving greatly increased production and effecting marked savings in labor and end waste; mechanical features include a crushing cutter which enables one to cut all types of fabric, and a device which allows changes from one width to another to be made in less than a minute.

The upright finisher for tubular knit goods, first shown two years ago, has now been fitted with a variable-speed device for changing the speed of the spreader rolls and with a new type of steam box with suction fan to remove vapors from the vicinity of the machine. Designed particularly for large dyehouses, where it is necessary to dry many swatches quickly, is a swatch or sample dryer with a 14x14-in. Aerofin heater for drying and a device for steaming the sample after drying. Two years ago the manufacturer of a well-known automatic hosiery boarding machine added to this equipment a conditioning unit which subjects the goods entering the dryer to the action of steam. This year he has incorporated an automatic welt setter between the conditioner and the dryer, has installed in the dryer a device for controlling the circulation of the air to equalize the drying of various styles of hosiery through the entire length, and has developed a hard-finish board which facilitates boarding of the hosiery. Corrosion resistance continues to be stressed in dyehouse equipment, the latest development being a line of Monel-metal-covered aluminum rolls, which are lighter and cheaper than all-Monel.

Among the textile chemicals brought out since last year's exposition are a concentrated degumming compound in powdered form; oils developed for use in throwing the high-twist yarns now in vogue; a wetting-out agent for use in neutral, acid, or alkaline solutions; a fatty alcohol sulphate type of detergent in powder form; a wax softener for cotton knit goods; two wool oils for spinning mills; a range of fugitive tints (*T. W.*, October, 1935, p. 133); a line of non-oxidizing finishing oils (*T. W.*, Feb. 14, p. 110); and a preparation for cleaning hosiery forms.

Refinements in the several types of sewing machines for attaching elastic webbing to the tops of knee-length hosiery, described in our report of last year's exhibition, have been in the direction of higher speeds. With one three-needle machine, for instance, the elastic is attached to the hosiery previous to seaming, an operator handling as many as 80-doz. pairs a day. Unusual among sewing machines was a wheel-feed machine for putting a blind hem on rayon or silk fabrics. Other new, high-speed sewing machines included an overedging machine operating at 6,000 r.p.m.; a three-needle, flat-bed interlock machine for attaching split-tube borders to necks and armholes of knitted garments; a two-needle interlock for attaching cuffs; and a machine for hemming and simultaneously inserting elastic in the bottoms of bloomers, and other garments. Buttonhole machines exhibited for the first time were an adjustable fly-bar machine, making the buttonholes of any length from $\frac{3}{4}$ to 2 in., and a machine for making 2-in. buttonholes in bathing trunks to eliminate the usual belt loops. Particularly interesting to many visitors was a preview of a button-sewing machine which has not yet been placed in the market; this machine, which is designed to put 8, 12, 16, or 24 stitches in a 2- or 4-hole button without change of cams, has a vibrating needle bar and a double looper arrangement to give perfect timing on each needle stroke. An automatic adjustable cutter was shown attached to a sewing machine producing belt loops.

YARN MACHINERY

ALTHOUGH the amount of throwing equipment exhibited was as great as at last year's show, new developments in the machines were fewer. The large-package idea has been extended from doubler-twisters to twisters, the receiving bobbins being just large enough to take all the yarn from the 7-in. doubler-twister bobbins. Single-end twisting with basket tension has been speeded up to 1,450 r.p.m. on 50-turn yarn. Operators of doubler-twisters now have the choice of a handle or a foot pedal for stopping the spindles. Adjustable bearings for the bobbins on skein winders permit moving them closer together to take up wear. Rotary-guide cone winders have been more completely inclosed with die-castings. Improved bobbins were shown.

The conditioner and twist setter for rayon yarns first exhibited last year was shown in an improved model with electrically operated temperature-control instrument, fin-type heating coils, and terminals located outside the machine in order to prevent burning out by contact with moisture. Improvements made recently in an extractor-type conditioner for individual cones, tubes, and bottle bobbins (first shown at the 1934 exhibition) included new motors, new safety devices, and models which can accommodate packages 9 in. in diameter.

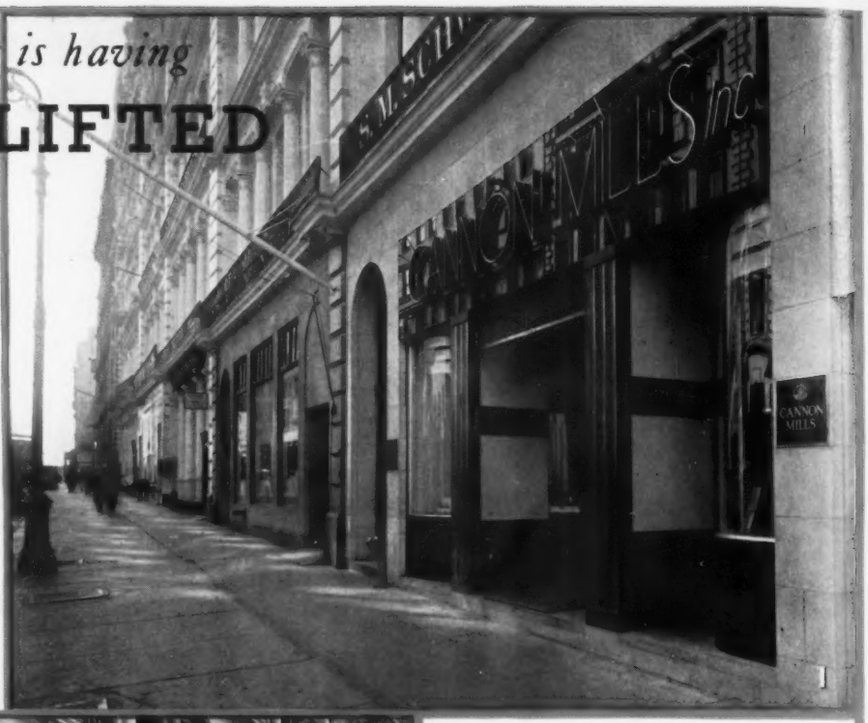
As in previous years, many of the more attractive exhibits were those devoted to yarns and fabrics. Of particular timeliness were the displays of new high-twist and direct-knitting hosiery yarns, staple-rayon yarns, elastic yarns of various types—one composed of a tubular latex sheath with a soft fibrous core—a shrink-proofed silk and wool blend, and open work elastic tops.

Outstanding among the new types of testing equipment featured is the photo-electric-cell device, described last month in TEXTILE WORLD, for grading and automatically recording the evenness quality of raw silk. Optical equipment displayed for the first time included a ring illuminator for the surface illumination of textiles, a textile microscope set up for classifying cotton by the Pattee method, and an orthostereo camera and orthostereoscope. Among the other new scientific instruments featured were a micro-fluorescence lamp, a photoelectric reflection meter, and a photoelectric colorimeter.

Worth Street district is having

ITS FACE LIFTED

"Plastic surgery" adds new beauties to textile office entrances



1 A modernistic entrance gives an effective "dress-up" appearance to mill offices, as witness the new entrance to Cannon Mills, at 70 Worth Street, New York. This 1936 type of entrance, superimposed on an old building, has real sales value in attracting the eye of the visiting buyer.

2 The entrance to the Marshall Field & Co., sales offices, also on Worth Street, is well calculated to draw buyer attention. Two features of this exterior are notable—the contrast it offers to the adjoining buildings, and the facing of the structure which is so highly polished that it mirrors the buildings across the street.

3 Individuality and smartness are combined with severe simplicity in the new front of the Bliss Fabyan & Co. office at 32 Thomas Street. Both in its color, black, and in its design, this entrance stands out compellingly against its surroundings on an old-fashioned street.

4 The face-lifting trend has not yet affected Leonard Street. Here, as the camera shows, the fronts of textile offices are strictly pre-war—indeed many are of a vintage considerably older than that.

ADVERTISING PAGES REMOVED

THE OVERSEERS' CORNER

Keep Small Things Small

By John Williams—Based on actual mill notes

I AM firmly convinced that one of the reasons for serious labor trouble is that small things are allowed to grow into big ones. I have had an opportunity to study the situation in a mill near here, where there has been a strike for a number of weeks, and it has recalled to me an incident in my early days.

The trouble at the mill near here all started about a minor matter of work assignments. It had been decided that a slight change would be made in a certain department, and it was left up to the overseer to see that the plan was put into effect. Unfortunately, the particular overseer wasn't very wise, and he merely called up the men who were to be changed and told them that on the following Monday they would be expected to begin performing certain operations on so many machines. The overseer didn't bother telling them that, to compensate for the added number of machines they would handle, certain of their old duties would be taken over by others. The men got together to talk things over, and, not knowing the real situation, they thought they were being imposed upon. When they protested indignantly to the overseer, he got indignant also, one thing led to another, and soon the whole plant was on strike.

The overseer was short-sighted in the first place, but his superiors were at fault in thinking that they need not bother about such a small matter. What they did not realize was that labor trouble is just like a snowball rolling down hill. The incident I recall from my early days illustrates the point. One worker got in a fuss with the overseer about something, a few others stopped work to see what it was all about, and soon the whole department was milling about. When I got there, I found other departments on edge also, and there was a "strike." Those I questioned really didn't know what it was all about, but quickly thought up some reason to explain their actions. In a few minutes there was a great list of grievances. It seems foolish that the original incident was lost sight of, but that was the case, and it took some time to get things straightened out.

My point is that workers are moved by mob psychology and that you have to watch even the smallest beginning. For this reason, I personally supervise any change in work assignments, or anything of the sort, that goes on in this plant. Some overseers think that this is stepping on their toes, but I think it is part of the superintendent's job.

Mixing in Politics

Editor, Overseers' Corner:

When Jones, superintendent of the Blank mills, calls the overseers together, or calls the workers in general to a meeting, and introduces to them "my friend Mr. Smith, who has made an exhaustive study of the present situation, etc.," an apparently respectful silence falls over the gathering. Mr. Smith, extremely affable and solicitous for the welfare of the assembled group (though both his affability and his solicitude seems to be merely pinned to his pomposity to properly grace the occasion), proceeds. After the delivery of a carefully planned and prepared message, in which Mr. Smith does not forget tactful mention of "an intelligent group like this," the employees are permitted to return to their work.

Could the eye and ear of Jones, the superintendent, follow the employees as they break into groups of two and three, and discover what is their genuine reaction, he would quickly find that the message did not get to first base. Any group of workers is liable to be naturally suspicious, and, if they can find the least bit of reasonable excuse to hang their suspicion upon, it will flourish amazingly.

"If Jones is so worried about us," says one, "how does it happen he gets worried only when he has an axe to grind?"

"Yeh," says his companion, "that's the first time I seen the old boy smile since the Supreme Court knocked out the NRA."

"They must think we're a bunch of saps," declares a third.

Some will go so far as to decide what would be good for Jones would probably be bad for them, and then and there make a mental resolve to vote opposite to the suggestions of Mr. Smith. This is an unhappy state of affairs, because there is little doubt that management could really give guidance in political affairs that would be of mutual benefit to mill and the workmen, but any attempt to guide the mental processes of workmen *en masse* is sure to fail.

It is possible to lead men to do the thing we see and know to be right, if and when those men have been convinced of your genuine interest in them and are also convinced of the correctness of your views. But there is one thing of greater importance even than these, and that is your standing among the men on a strictly human, man-to-man basis. If Thompson likes, respects, and admires Billings, it is no trick at all for Billings to get the ear and attention of Thompson, and Thompson will be liable to vote the "Billings ticket," even where his personal judgment leans somewhat in the opposite direction.

On the other hand, if Thompson dislikes Billings in ever-so-small a degree, the very best thing Billings can do is to keep his mouth tightly shut, unless and until he can first win the respect and friendship of Thompson. If he keeps his mouth closed, there is a chance that Thompson will vote the Billings ticket by accident, but let Thompson discover that it *is* the Billings ticket, and he will go against it.

J.E.H.

Another Slant on Politics

Editor, Overseers' Corner:

Ted Grimes' idea, as expressed in the March issue, might have some merit if his mill were located in a doubtful district, and he knew his employees well enough to be sure that the influential majority were level-headed and sensible enough to see that their future welfare was inseparable from the mills' future. However, when there is an appreciable element always at odds with the management, and viewing with suspicion everything sponsored by the management, it is hopeless to try and enlighten

THE OVERSEERS' CORNER

CONTRIBUTIONS

Contributions to "The Overseers' Corner" will be paid for without regard to length. We will be glad to use letters discussing the narrative on page 107 or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute kinks or practical helps will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. If these pages interest you—contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42d St., New York, N. Y.

them, as they are "agin" everything and everybody, including themselves.

In several places I have found that a clipping of a strong address posted on the bulletin board, together with comments by the manager and an appeal concerning the future welfare of the workers' families, was a tactful way of exerting influence in getting the ballots marked "right." One bright worker once remarked to me, "well, I have voted the way the manager wanted us to, and now if we don't have jobs it won't be my fault."

Experience has shown that outside speakers have practically no influence on ballots. In fact, their lack of detailed knowledge of local conditions—or worse, the brief smattering the management tries to impart to them—is liable to create antagonism.

Personally, I favor having the mill manager get a couple of influential workers from each department, and then, without assuming superior knowledge but crediting the sources of his information have him explain all the details to the men. Let the men ask questions, so they, in turn, can talk intelligently with their fellow workers. We worked this in a couple of elections to marked advantage.

E.E.G.

Second Hands and Overseers

Editor, Overseers' Corner:

I enjoy reading very much the letters in your splendid magazine by different overseers, and receive much helpful information from them. In the March issue there are several items on the relation of the worker to his overseer. I have always found that it pays to take your employees into your confidence.

I am a second hand in a large jacquard weave room. My boss, the overseer, is very good about letting me run my own job. As a result, I have direct control over my help. I have found that it pays in more ways than one to tell your help *why* it is necessary to do a thing in a certain way, that is, not only tell them to do such and such a thing, but go a little ahead and behind to show them what bearing it has on the next process.

For example, we now have a very difficult stripe pattern that is hard for the twist-in hands to get straight, and also hard for the smash hands to check and see that it is straight. The first few times one of these warps was put in, I made it a special point to show the twister, and then later the smash hand, exactly how it went, and why and how they could tell if they were wrong. The workers took pride in the fact that they knew something about it, and in a short time I had no worry about these patterns. The night shift, which merely had the men put the warps in, was continually having trouble getting them right, and had to do quite a bit of work over again that could have been saved by taking a little time with the help at the start.

Workers who feel that you are not trying to keep them in the dark, but, instead, know that you are trying to help them learn something about the work are better satisfied and will re-earn many times the few extra minutes spent with them.

J.M.G.

Be a Real Second-Hand

Editor, Overseers' Corner:

Are you a real second hand? Can you do your duties from the bottom to the top? If not, you have no right to criticise your superior for getting after you when your department is not in order, because, after all, it is his duty to see that everything is carried out in first-class order.

Five years ago, I had a second hand for whom I had to do half the work. Many times when something went wrong on the machine he wasn't able to adjust it, and, after he had already spent an hour around the machine, I had to leave my work, which was of greater importance, to assist him. This went on for a long time, and as the results were poor, even after I had shown him right from wrong, I had to let him go.

Now I have a real second hand. He is reliable, aways on the job, and always looking for things to prevent imperfect work. He doesn't have to be told the same thing twice, and our efficiency is high and expenses low. The superintendent and I are very pleased with him. We have already given him a $5 raise, and we are going to give him $5 more, for he really is worth every cent of it.

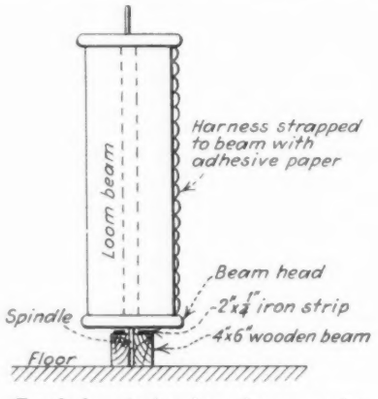
I have given an example of the difference between a second hand who knows his business and one who doesn't. Remember, if you are a new man and not quite sure of your job, try to learn. When I was a second hand, I often went up to my overseer to ask him questions and he was always pleased to answer them.

J.X.C.

Practical Helps for Overseers

Storing Harnessed Beams

In a South Carolina mill which manufactures many different styles of goods, full beams (harnessed) are stored in a special room fitted with parallel tracks, as shown in the accompanying sketch. The beam head slides on the double tracks with the spindle between, so that the beam and harness can be easily removed without bumping or overturning other beams. Another advantage of the tracks is that they permit segregation of similar warps and harness arrangements.



Track for storing loom-beam, ready-harnessed.

Asbestos Wrapping on Size Kettles

A southern mill found that evener temperatures could be maintained in size kettles by wrapping the outside of the iron container with asbestos. Sheet zinc is wrapped around the kettle on top of the asbestos to protect it and to facilitate cleaning. Other metals can be used in place of zinc, which occasionally is attacked by chemicals in the size.

Repairing Feelers

In our mill we use electric feelers. Due to the fact that the feelers are of composition material, we were having trouble with the ends chipping off along the line marked in Fig. 1. The holes for the coil springs extend to within approximately $\frac{3}{16}$ in. of the front end of the feeler, and the holes from this point

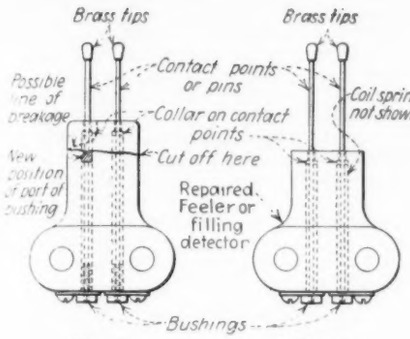


Fig. 1 Fig. 2

to the end of the feeler are just large enough to permit the contact pins to slide freely. When the feeler is chipped, there is nothing to prevent the coil spring and contact point from flying out.

The first step in repairing a broken feeler is to cut it off back of the chipped part. The contact pins are reversed and one of the coil springs cut in half, as the two halves are sufficient for one repaired feeler. The bushings are then removed from their position at the back, screwed into the front end about $\frac{3}{16}$ in., and cut off. The remaining 6/16 in. of each bushing is then replaced in its original position. The repaired feeler is shown in Fig. 2.

C. H. CALLAHAN

Questions and Answers

Elevation Rods for Rayon Warping

Technical Editor:

Kindly advise me if there is a practical method of elevating the stave blades in warping synthetic yarn. Our warping mills are of the Benjamin Eastwood type, 5-meter drum. We make warps anywhere from 288 ends to the inch, down to 48 ends to the inch, using viscose, acetate, synthetic crepe, and combination twists.

If the method mentioned above should be used to make more perfect warps, kindly, if possible, let me know the system of calculating the density of the traverse. Our warps are made a total length of 400 meters, the traverse being $4\frac{7}{16}$ in. to the section. (8307)

In some cases it has been found that the elevation rods are not as practical on a horizontal warper as on a Swiss warper. On the Swiss frame the elevation rods are fitted into a rim with curved slots in it. This rim is attached to the drum. If an adjustment is to be made, the rim is moved back or forth, raising or lowering the elevation rods as the case may be. With the adjustment of this rim, all bars respond at one time. On these frames the circumference is so small that something has to protect the piling up of silk, regardless of how much traverse is employed per hundred meters.

The horizontal frame presents an entirely different condition. The elevation bars on these frames are individual units. Each one has to be adjusted separately. In practical mill work this adjustment shows so much discrepancy on individual bars that the results are more often bad than good.

The larger circumference of the horizontal frame can readily absorb the piling up of silk by the traverse employed. You state that a traverse of $4\frac{7}{16}$ in. is used for a 400-meter length of warp. This is the traverse usually employed on an 8-yd. horizontal frame. If you experience any slackness in your warps at the ends and feel it is due to the smaller circumference of the 5-meter machine, we suggest that you increase your sprockets attached to the traverse bar on both the warping and beaming ends so that you will obtain a traverse of approximately $1\frac{1}{2}$ in. per 100 meters. This would be of more practical value in overcoming slackness than the adjustment of elevation bars (and more positive).

On synthetic yarns humidity and temperature play the greatest part in preventing slackness.

Weather Effect in Hosiery

Technical Editor:

We are inclosing one whole stocking of a light shade and part of another stocking of a dark shade. Kindly note the defects in these stockings and advise us as to the cause of these defects. You will note that the defects are more pronounced in the dark stocking than in the light one. (8309)

The two samples submitted show a heather effect. The cause is undoubtedly the same in both cases; but a defect of this character is always more evident in a dark shade than in a light shade. The cause appears to be uneven twisting of the silk. The light tone is soft twist, and the dark tone is hard twist. You are, of course, familiar with the causes for uneven twist, which include jumping of the bobbin on the twister, variable speed of the spindle, etc. We recommend that you carefully test the twist in the yarn.

Woolen-Scarf Edging

Technical Editor:

We are manufacturers of woolen scarfs and novelty cloths. To date we have been using an old system of making a leno or doup edge on our scarfs, and are interested in obtaining a new and efficient device for this work. We shall appreciate any information you can give us on this matter. (8315)

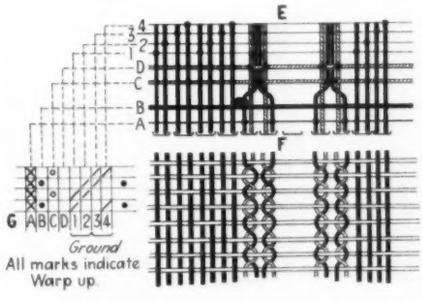
The leno or doup edge seems to be the universal method adopted by manufacturers of this type of fabric. In principle it is quite simple and effective and allows the manufacture of from six scarfs upwards in width, according to the reed space of the loom and the finished size of scarf required.

When making scarfs in multiple, it is most essential to have firmly woven and non-frayable selvages on each side of the scarf; and in order to do this with the present picking arrangement of the loom, some special weave mechanism is essential. As far as we know, no new mechanism has been put on the market which would effect this purpose satisfactorily, although some mills use devices of their own employing the leno method of binding. We give below a rough outline of what we believe should prove quite suitable and allow of simple application to any modern loom.

In addition to the harnesses required for the ground weave, it is necessary to have the following heddles or harnesses. Half doup *A* (see accompanying sketch); front-crossing heddle *B*, to which the doup is attached; a back-crossing heddle *C*, through which the crossing ends are drawn; and a standard heddle *D*, which carries the standard ends. In drawing the warp through these special heddles or harnesses, which incidentally are placed in front of the ordinary harnesses and in the order marked, the ends are drawn through the back-crossing heddle *C* and the standard heddle *D* in the usual manner, and each crossing end is passed under the standard end and drawn through a loop of the doup *A*.

To allow for the longer stretch of the crossing ends, it is necessary to affix, a little farther back than the back rest, an easing rod, which moves in and out as required. The large dots in lifting plan *G* indicate when the easing rod is in; i.e. when the front crossing heddle *B* is raised. Diagram *E* represents the drafting arrangement, under which the brackets signify the order of denting. It will be noted in this instance that the ground and leno ends are dented in twos and an empty dent between each scarf is shown, this facilitating separation after finishing. The flat view given at *F* represents part of the ground weave and the four ends of selvage—leno weave—while the space between each selvage indicates the division obtained by missing a dent.

It will readily be seen that in this way scarfs in multiple can be woven with quite



serviceable listings and with very little trouble or additional loom equipment. The particulars given above refer to the bottom doup mechanism.

Faulty Roving Bobbins

Technical Editor:

Will you kindly answer the following questions relating to Howard & Bullough speed frames, dated 1914: (1) What causes the bobbin rail to stop and put a ridge on the bobbins? (2) What causes running off at the ends of the bobbins? (3) What could be the cause of many swing carriers breaking, also swing arms, in the drive to the bobbin shafts? (8311)

The basis of your trouble appears to be the need for leveling and aligning your machines. If machines are to be properly maintained, they must be leveled and aligned at least every two years, and worn parts replaced on those occasions.

With specific reference to your first in-

quiry, it appears that the builder motion needs attention. The poker bar must be binding. Possibly the weights are not swinging free or, in other words, are exerting uneven weighting, due to some obstruction. Your third question might have bearing on this first question.

With respect to your second question, running off at the ends of the bobbins can be due to various causes and not necessarily to one special item. It is very possible that the change in traverse is not made quick enough, due to a bind in the builder mechanism, to worn gears, to binding of the rail, to the rail being out of line, etc.

The breakage you inquire about in your third question is possibly due to binding of shafts. This binding in turn may be due to worn bearings or to the machine being out of line and badly in need of leveling. It might be due to the strain at the end of each traverse, especially on the up-stroke. There might be a bind in one special position of the rail (possibly on the up-stroke) which would cause considerable strain on the swing arms.

Holes in Bleached Hosiery

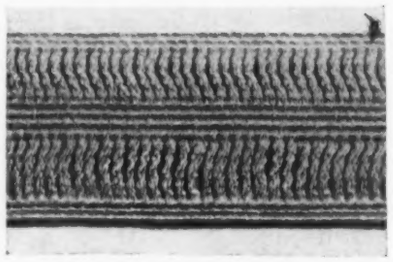
Technical Editor:
We are sending you a few stockings which are made of vat-dyed rayon yarn, and which have been bleached. You will notice tiny holes throughout the entire stocking. We do not think the holes are due to incorrect knitting, but believe they are due to the bleaching process or that the dyed rayon was at fault. The following is the bleaching formula: 6% of 100-volume hydrogen peroxide, 2% silicate of soda, 5% sulphonated castor oil, 140° F.; bleached overnight. We are interested to know the cause of the fault, and shall appreciate your reply. (8263)

Examination of these samples indicates that the holes were formed during the bleaching operation. In our opinion that it is inadvisable to prolong the bleaching operation overnight. We recommend that for a 100-lb. lot, the stockings be scoured for 15 to 20 min. at 180° F. in a solution, say, of 4 to 6% of soap and 1% of trisodium phosphate, rinsed twice in warm water, run for 5 min. at 180° F. in a bath containing 5 lb. of sodium silicate and 6 oz. of sulphonated fatty alcohol or other wetting agent, add 5% of hydrogen peroxide, run for 25 min. (or a little longer, if necessary to obtain a good bleach), rinse, soap off as usual. Bleaching can be carried out in either a rotary or paddle type machine. Presence of iron in the water must be avoided. If the hosiery contains rust spots or oil stains in which metallic particles are held, the danger from holes during peroxide bleaching is increased.

Should Braid Be Finished?

Technical Editor:
We received your reply to our inquiry concerning elastic braid, for which we wish to thank you. We are inclosing herewith another sample of elastic, which we made, and would ask you to let us know if this should be finished or if it could be improved in any way. (8300)

Whether or not this fabric should be finished should be determined by the purchaser if the material is manufactured against a definite order. If the braid is made against a speculative order, the decision is usually up to the sales manager. Finishing will improve the appearance of



the material, but will add considerably to the cost. Finishing will also increase the percentage of stretch, and increase the weight per yard.

The sample submitted seems to be lopsided, as if the former were not set correctly, or the needles (selvage bars) were not lined up properly. Correct adjustment of these parts would greatly improve the appearance of the braid.

Soaking China Silk

Technical Editor:
You published a formula in January, 1932, for soaking China silk. I should like to know if any improvements have been made in this formula since then that will give better results in winding this material. (8317)

The subject of soaking China silk—and, in fact, all types of silk—has been given much thought and study since 1932. New soaking materials have been developed, which have not only simplified the soaking technique, but have given definite improvements in results. The nature and character of the silk have likewise undergone changes. Today we find most silks containing lime in amounts as high as ½%, which was not found in the silk of four or five years ago.

Today it is not necessary to give China silk a double soak, the newer types of soaking oils having the same effect in a single bath. By this we mean that the gum spots and reel marks can be broken up without stripping any of the sericin.

Some of the silk soaking compounds now on the market have incorporated in them penetrating agents, plasticizing agents, and lubricants. They are compounded to provide the increase in weight necessary to give the wanted boil-off and clearance. Use of soaking machines has made it possible to reduce the soaking time from overnight to a matter of 1 to 1½ hours.

The amount of water varies with the type of soaking equipment used. For tub soaking it will require 65 gal. per bale of silk. For the Franklin machine, 80 gal. of water is needed. For the Gates-Pfeiffer machine, 95 to 100 gal. is needed. The Rochester Engineering & Centrifugal Corp. machine uses only 25 to 30 gal. Regardless of the machine or time required to soak the silk, the initial temperature of the bath for China silks should be 100° F. The amount of soaking compound used varies with the purpose for which the silk is to be used.

If a soluble-silk soaking oil is employed, for crepes 12 to 14 lb. will be required per bale (106 lb.). The oil is placed in a pail and 3½ gal. of water heated to 160° F. is stirred into it slowly. This breaks up the oil and gives the maximum take-up of the oil by the silk. The oil is then added to the soaking bath, which has been previously heated to 100° F. The tint, if used, is added, and the silk is entered. These directions apply to tub soaking.

If a Franklin or Gates-Pfeiffer machine is used, the method of mixing the oil remains the same, but the silk is placed in the machine and the heated water (100° F.) is circulated through the silk until it is wet out. Then the oil solution is poured into the auxiliary tank and permitted to circulate through the silk. With the Rochester machine, the oil is made up as directed above, and then added to the storage tank where the rest of the water is held. A layer of silk in bags is placed in the machine and the soaking solution is sprayed into the silk. Alternate layers of silk and oil are added, so that all the solution is run in as the last of the silk is entered. Some practice is needed to do this well.

Some China silk is now being used for hosiery tram of the direct-knit variety (three-carrier system). One or two additional materials are needed for this type of yarn. Where the relative humidity of the knitting plant is low, from 3 to 5 lb. of glycerine or other hygroscopic agent is needed. Where the humidity is in excess of 65%, it can be dispensed with. In most mills, 2 to 2½ lb. of potassium carbonate per bale will be needed in order to soften the gum and permit it to wet out on the knitting machine. Where the silk is backwound or box-conditioned, the amount of potassium carbonate can be reduced to 1 lb. If the China silk is used for warp stock, the formula is reduced to 5 lb. of oil per bale and the other materials are dispensed with. Very hard gum silks are soaked ½ to ¾ hours, and Chinas of a soft nature are soaked 15 to 20 min.

Cotton Fabric Dusts

Technical Editor:
I am inclosing sample of cotton fabric and some lint dust and wonder if you can suggest a means of overcoming this situation. In stitching up this material, the starch or weighting body is freed and hangs like a pall over our stitching room; gets into the sewing machine gear, etc., and is annoying to the workers. Of course, this is a low-end material, but I was wondering if the same cloth weighted with other materials less dusty would be the answer. Do you think this starch dust constitutes an explosion or fire hazard? (8305)

It has been our experience that when heavily starched and weighted back-filled goods show this tendency to dust, it is an indication that the back-filling or weighting formula is out of balance. That is, it shows that there is lack of sufficient binding ingredients in the formula. In recent years finishers doing heavily weighted goods have found that the use of soluble waxes is of great assistance in binding starch, talc, China clay, and other inert loading agents to the fabric. That is, if soluble wax is employed in addition to the usual gums, a better binding effect is obtained and the tendency of the fabric to dust when stitched or torn is eliminated. The cooking time which the weighting or back-filling solution has been given is also an important factor. If the solution is not cooked long enough, it will not give proper penetration and will not be properly bound to the fibers and, therefore, will dust from the fibers. If the solution is overcooked, the jelling bodies in the starch, gum, etc., will be destroyed or reduced to sugars and other compounds, which likewise will dust. The sample was not sufficiently large to permit determination of the percentage of size and loading agents added to these goods and, therefore, it would be difficult to reconstruct the formula or advise a good formula. It can

be said, however, that the proper control of cooking time and the addition of gums and soluble waxes to the present mixture should overcome the trouble.

The question as to whether or not the starch dust constitutes a fire hazard, or might cause a dust explosion, is difficult to answer. It probably would not cause a fire hazard, as there are probably enough inert ingredients used in the back-filling solution that the dust would not support combustion. However, as far as dust explosions are concerned, no one seems to be able to tell when or where one of these will occur. Even though the dust might not cause an explosion, it certainly is not beneficial to the health of the stitching machine operators. It would be a good idea to use a suction fan to draw as much as possible of the dust from the room.

Personal News

G. D. Holler has resigned as overseer of weaving at Alice Mfg. Co., Easley, S. C., and has been succeeded by **J. J. Leslie,** who was promoted from loomfixer to weaving overseer.

Frank W. Biery has joined Atlantic Mills, Stottville, N. Y. He was formerly overseer of dyeing at the worsted division of Pacific Mills, Lawrence, Mass.

E. C. Burnham, formerly of Sargent, Ga., is now overseer of the spinning and twisting departments of Caroline Mills, Carrollton, Ga.

Henry Atkinson has resigned his position with Arlington Mills, Lawrence, Mass., to become overseer of burling and mending at Farr Alpaca Co., Holyoke, Mass.

Otto Ruhlin has resigned as overseer of finishing at Lawrence (Mass.) Dye Works and has accepted a similar position with Sawyer Mills of American Woolen Co., Dover, N. H.

B. J. Whatley, overseer of the cardroom at Bibb Mfg. Co., Mill No. 2, Macon, Ga., has resigned to accept a position with the W. R. Grace & Co., at Lima, Peru.

V. J. Thompson, superintendent of the Manchester (Ga.) plant of Callaway Mills has been made foreman of the central machine shop at LaGrange, Ga.

W. Preston Dunson, superintendent of the Valway Mill, has been transferred to succeed Mr. Thompson. Mr. Dunson is succeeded by **B. P. Albright,** who was promoted from assistant superintendent.

O. B. Haney has been transferred from the Dallas plant of Texas Textile Mills, Inc., to the Waco plant where he is superintendent.

Maurice B. Goodwin, general overseer of weaving on both divisions of Pepperell Mfg. Co., Biddeford, Me., who resigned May 1, was presented with a purse of $125 as gift from the weaving department. He has been with Pepperell for 40 years.

O. Windhagen, textile superintendent of American Enka Corp., Enka, N. C., has resigned in order to go abroad.

Max W. Higgins, formerly with Mooresville (N. C.) Cotton Mills, is now in charge of warp preparation, dyeing and weaving at Allen Mills Co., Troy, N. C.

L. A. Beckett has been made overseer of carding and spinning at the Sally B. plant of Avondale Mills, Sylacauga, Ala.

KEY MEN AT DRAYTON MILLS, SPARTANBURG, S. C.

Front Row (left to right): F. W. Waldrop, overseer spinning; V. D. Snyder, overseer weaving; J. K. Poole, overseer slashing and drawing-in; C. G. Seay, master mechanic.

Second Row (left to right): J. B. Powell, overseer cloth room; W. H. White, assistant superintendent; H. C. Byers, overseer carding; Smith Crowe, general superintendent.

MEET MR. MOBERG

As might be suspected from the picture and the name which has been signed to a number of articles in TEXTILE WORLD, Ivar Moberg is a native of Sweden. New England winters hold no terrors for him, as he enjoys skiing as well as skating; other seasons he has to content himself with such additional hobbies as fishing and hunting. Lest this prove too sporting a description, however, it might be added that Mr. Moberg has his duties as the head of a family, as evening instructor in dobby and jacquard weaving at Lowell Textile Institute, and as supervisor of weaving and designing at Boott Mills, Lowell, Mass.

In 1904, at the age of sixteen, our subject started in the textile industry with P. Ericsson & Co., in a plant of the company at Grönkeller, Bollebygd, Sweden, which manufactured and finished awnings and other weatherproofed materials. He rose to the position of boss weaver and then, in 1910, became general superintendent. War cut off the supply of raw materials and the plant was forced to close in 1916, so Mr. Moberg came to this country and took a job as weaver at Boott Mills. He advanced to loomfixer, next to assistant supervisor of weaving, and then to his present position. He likes to live at, or near, the top of a hill, and it proved a fortunate preference when the flood ravaged homes in the lowlands of Lowell last March.

J. S. Gammon holds the same position at the Catherine plant.

B. S. Waldrip is now overseer of the shipping department of Entwistle Mfg. Co., Rockingham, N. C., Unit No. 2, succeeding **Russell Ford,** who resigned and has gone to New York City to make his home.

R. R. Simmons, for fourteen years associated with the office of Pee Dee Mfg. Co., Rockingham, N. C., has resigned.

S. E. Giles has assumed his new duties as assistant superintendent of the Jac Feinberg Hosiery Mill, Rock Hill, S. C.

Edward J. Moore has been promoted

to the position of superintendent of dyeing and finishing at Paragon Worsted Co., Providence, R. I. He was formerly overseer of finishing.

F. E. Hollar has become overseer of the clothroom at Jackson Mills, High Shoals, N. C. He formerly held a similar position with the Mansfield Mills, Lumberton, N. C.

J. B. Boyter has assumed his new duties as overseer of spinning at the Rhodhiss (N. C.) Mills No. 1. He formerly was overseer of spinning and twisting at the Fitzgerald (Ga.) Mills.

Cotton-Mill Tests

Subject of Eastern Carolina S.T.A. Meeting at Textile School in Raleigh

IN AN INTERESTING paper read at the Raleigh meeting, R. J. McConnell said tests indicate that traveler speed is a more important factor in yarn strength than spindle speed and size of ring. "Within a few years," he said, at another point, "our shop will be making all of our roving frames with apron drafting control."

"TESTS and How to Make Them" was the theme of the spring meeting of the Eastern Carolina Division of the Southern Textile Association, held April 25 at the North Carolina State College Textile School, Raleigh. P. B. Parks, Jr., of Erwin Cotton Mills Co., Durham, N. C., chairman of the group, presided. Robert J. McConnell, in charge of textile research and superintendent of service, Whitin Machine Works, Whitinsville, Mass., made the principle address of the session, while brief talks were given by Marshall Dilling, secretary and superintendent of A. M. Smyre Mfg. Co., Gastonia, N. C., and Dean Thomas Nelson, of the textile school.

Address by R. J. McConnell

Mr. McConnell explained a system of testing cotton employed in the mill with

Robert J. McConnell who spoke on cotton testing

which he was connected until last August (Pequot Mills, Salem, Mass.), as follows:

"When the tare bales were weighed, 20 lb. was taken from each of ten bales of a 100-bale lot and run through the pickers to get a waste test. A 45-lb. lap was taken from this lot, and a card test was made. The lot was followed through the card room to the spinning room, and from the spinning room three sizes were sent to the laboratory at intervals of 8 hr. A serigraph was made of the yarn.

"One form carried the complete story of this particular lot of cotton—the amount and percentage of picker waste, the amount and percentage of card waste of each kind (top strips, doffer and cylinder strips, licker-in waste, fly, etc.), and the individual sizes and breaks of the yarn with the average and factors. On each test form there was also a notation made by me as to the quality of the yarn and the strength. This report was made in duplicate; and a copy, together with serigraph card, was sent to the cotton classer, who in the beginning had made a polarized-light microscopic test of the cotton fibers. So, you see, he had a pretty complete story.

"In making these tests, one man followed them through the mill and did all the work in connection with them. The tests were always run through the same pickers and cards and spun on the same spinning frame, so as to eliminate as many variables as possible. This mill had a completely equipped laboratory, and all weighing and breaking were done there. The cost of running these tests was merely the wages of the one hand who ran them, and he could take care of ten tests weekly. When you consider the complete story, the cost is very low."

The speaker also discussed some interesting facts discovered by the Whitin research staff: "We have found out that on 21s warp the strongest yarn is made with a traveler speed of about 4500 ft. a minute. The striking part of this test to me was that, starting at 3000 ft. a minute, the strength of the yarn increases up to a traveler speed of 4200 ft. a minute, holds there from 4200 to 4600 ft., and then falls off, as the speed increases, at a much slower rate. In other words, at 5500 ft. a minute the breaking strength of the yarn was about the same as at 4000 ft. a minute. Another interesting phase of this test was that the effect was approximately the same whether the spindle speed was increased or whether the ring diameter was increased. It was the speed of the traveler that affected the breaking strength of the yarn. This effect on the quality of the yarn was more noticeable in the finer numbers, the peak being reached at a much lower speed. To my mind, this is a field for mill tests that should prove a profitable one."

Mr. McConnell concluded his address with some interesting remarks on roving: "The Super-Draft roving frame is developing rapidly; and, while our installations of five-roll and six-roll frames are proving eminently satisfactory, we are even now trying out in a northern mill close to our shop a simplified four-roll frame which, in the laboratory, has surpassed to a marked degree the performance of our other frames. To my mind, within a few years our shop will be making all of our roving frames with apron drafting control. It is the intelligent way to draft, and it will inevitably be demanded by you mill men."

Discussion

Consensus was that mote knives, weights, speeds, etc., on picking or opening machinery should be set according to the character of the waste, the settings being varied until the waste presents the desired appearance. B. F. Aiken, overseer of carding, Mill No. 5, Erwin Cotton Mills Co., Erwin, N. C., sets his beaters from $\frac{3}{16}$ to $\frac{1}{4}$ in. on $\frac{7}{8}$-in. cotton, dependent on the speed limit of the vertical opener. If good cotton appears in the waste after he has shut the machine as close as possible, he cuts the speed of the beaters in order to open the setting somewhat.

There was a difference of opinion as to whether laps should be rejected because of variation in weight. Some members reported a difference of 2 to 4 lb. on 54-grain drawing sliver, 44-lb. laps. Mr. Dilling suggested that if laps were tested yard for yard, instead of weight per lap, results would be more worth while. A lap that varies 10%, he said, may be much more uniform yard for yard than one which varies only 5% overall. Mr. Lanier said that he had been taught to keep his laps within $\frac{1}{2}$-lb. variation, but that he feels the chief benefit from this practice is to keep the picker man on his job.

As to the effect on yarn of changing settings, draft, speed, or production, at the card, D. E. Long, overseer of carding and spinning, Oxford (N. C.) Cotton Mills, believes that the results of the change should be followed all the way through the plant. Mr. Harden said that he prefers to test the change on the same spindle rather than simultaneously on different spindles.

Conclusions Reached

It was agreed that a sliver tester is very useful in checking the sliver for roundness, since it magnifies any variations in the density of the material.

Twist-testing instruments were said to be satisfactory under certain conditions, but to be not 100% accurate because of variations in cotton.

Steel-roll settings and top-roll settings for roving frames are best determined by setting as close as practicable and working back, the actual setting always depending on the speed of operation and kind of cotton.

Cotton should be tested always from the same lot and, when possible, from the same bale.

Stretch in warp at the slasher can be determined by installing measuring instruments on both the front and back of the machine.

Percentage of size on warp is most simply determined by weighing the warp with size and without. Moisture in yarn can be determined the same way; that is, by finding the difference between bone-dry and normal yarn.

Complete instrument control on sizing operations was reported to give exact percentages of moisture in yarn dried at certain temperatures. J. V. McCombs stated that such control has enabled him to cut steam in the cylinders from 18½ to 23½% so that one of three boiler units could be discontinued.

Officers elected to serve during the ensuing year include P. B. Parks, Jr., chairman; J. V. McCombs, vice-chairman; and J. B. Batton, Rosemary Mfg. Co., secretary. D. E. Long, Oxford Cotton Mills, was made a new member of the executive committee.

Systematic Spinning

As well as separators, cleaners, sloughing, and other topics discussed at Spartanburg

SYSTEMATIC methods of handling spinning problems were emphasized at the spring meeting of the South Carolina Spinners Division of the Southern Textile Association, which met April 18 in the Franklin Hotel, Spartanburg, S. C. Joseph C. Cobb, night superintendent of Chiquola Mfg. Co., Honea Path, chairman of the group, led the discussion. John T. McFalls, president of the Southern Textile Association, was present.

The first question dealt with the advantages of roller-bearing spindles as compared with standard spindles. John W. Robinson, overseer, Granby plant of Pacific Mills, Columbia, reported that he has been operating a sample frame of roller-bearing spindles for several months at about 400 r.p.m. higher than standard. He adds oil about every three months but never completely changes it. John S. Lochman, overseer of spinning, Monarch Mills, Lockhart, S. C., has been running a roller-bearing frame over four years at 11,600 r.p.m., and likes it very much. He oils every four to six months. Robert C. Ligon, overseer of spinning, Gluck Mill, Anderson, S. C., said that he has had trouble keeping the spindles of a roller-bearing frame in plumb.

As to the practicability of changing from 1¾-in. to 1⅞-in. rings on 3½-gage spinning without the use of separators, there was considerable difference of opinion. J. C. Long, night spinner, Chiquola Mfg. Co., cited the results of a nine-day test as follows: Conditions were 23.95 turns per inch twist, 16.29 break factor, 1 1/32-in. western middling cotton, 134 r.p.m. front-roll speed, and from fair to cloudy weather. With the use of the separator, there were no more ends down. Average yarn number was 30.04, with a breaking strength of 54.25 lb. Mr. Thompson declared that he does not believe a separator is necessary on 31s yarn made with a 1⅞-in. ring on a 3½-gage machine, since he gets good results using a 7 in. traverse, No. 5 or 7 traveler, and 134 to 140 r.p.m. front-roll speed. A separator collects lint and makes gouts, he said.

THE SOUTH CAROLINA spinners discussed roller-bearing spindles, separators, traveling cleaners, filling sloughing off, quill tapers, checking ends down, and spinning-tape life.

Traveling Cleaners

Only a few spinners said that they are using overhead cleaning systems. A. F. Hunt, superintendent, Marion Mfg. Co., Marion, N. C., said that overhead cleaners have been installed in his plant over 36 frames of long-draft spinning, each head cleaning six frames and making a complete cycle every six minutes. H. G. Rollins, superintendent, Haynes Mill, Cliffside, N. C., said his plant has completed an installation of one cleaning unit for every eight frames, making a trip every five minutes. Mr. Long, of Chiquola Mfg. Co., reported that in his spinning room one unit covers 20 frames, making a trip every 6 min., 10 sec. The cleaner helps spinners and tends to prevent gouts, he said. The creels are still wiped by hand at intervals.

W. H. Burnham, representative of Parks-Cramer Co., was called on for his opinion as to the number of frames a unit should cover. He replied that this depends entirely on the roving, twist, staple, number, etc., pointing out that during the last two years exhaustive studies have been made on the subject, and that now a table is available showing how often a cleaner should pass a given point to clean adequately frames making a large variety of numbers and types of yarn. Consensus of the mill men was that decision in the number of frames to be covered by one unit should be left up to the engineer who installs the cleaning system.

Many and varied reasons and remedies were given for filling sloughing off. W. T. Morton, overseer of spinning, American Spinning Co., Greenville, said that sloughing off is caused by too slow a traverse, too light a traveler, or worn slick quills. The down stroke of the traverse should be fast and the upstroke slow in order to prevent the filling piling up and later sloughing off. An interesting remedy offered by one of the spinners consists of cutting a slot ¼ in. deep and ⅜ in. long in the heart cam when it is at its lowest point, or when the ring rail is at the top. This slot causes the traverse to jump at the top and lock the filling in place. It was reported that after five years of operation a frame so "doctored" is still giving good service. One of the most popular methods of preventing sloughing off is to keep filling conditioned over the week-end.

J. C. Cobb, who presided at Spartanburg

Consensus was that doffers or section men should be required to check regularly for slack bands on band-driven frames.

Chairman Cobb stressed at this point that a system in checking manufacturing in all departments is vital to efficient production. Several members described methods of checking spindles for ends down. The two most popular methods described are for the spinner to mark over each spindle with chalk every time he puts up an end, or for a special checker to work with the spinner and record the spindles which are giving trouble, as well as the reasons why. Several reported that such tests showed 75% ends down to be on 25% or less of the spindles. Similar systems can be worked out for checking rolls, levers, cams, traverses, etc., it was pointed out.

From five to ten months was suggested as being the average life of a tape on a tape-driven frame. Various methods of sewing tapes were described, and all agreed that it is advisable to have an overlap of several inches. The ends should be cut at an angle before sewing in order to distribute more evenly the shock of the joint striking the spindle. In most instances, it was reported that five stitches are used: one down each side and the center, and two zig-zagged.

There was a difference of opinion as to how often a cork roll should be buffed. One school of thought was that cork should be buffed quite often so that the surface would not get deeply grooved between buffings. Another group declared that cork should not be buffed

any more often than absolutely necessary. All agreed that only part of the rolls should be in the roller shop at one time in order to get the best results from the roller men. The kind of work being run was said to be an important influencing factor in buffing schedules.

Chairman Cobb asked what should be the length of the majority of the staple in the toppings on cards when 1 1/32 western middling is being used. R. T. Stutts, superintendent of the Woodside Cotton Mills Co. plants at Fountain Inn and Simpsonville, explained that this depended entirely on the fiber strip curve, since usually about 25% of the fibers are longer than the staple, 25% are staple, and 50% are shorter. In this instance, the majority of the fibers should be about 7/8-in. average or shorter.

From Card to Loom

Was range of topics at Northern North Carolina-Virginia meeting of S.T.A.

THE spring meeting of the Northern North Carolina - Virginia Division of the Southern Textile Association was held April 11 in the King Cotton Hotel, Greensboro, N. C. Leonard J. Rushworth, superintendent of Riverside Mills of Riverside and Dan River Cotton Mills, Danville, Va., chairman of the division, presided. A discussion of carding and spinning problems was led by W. J. Jennings, overseer of carding and spinning, Minneola Mfg. Co., Gibsonville, N. C. R. K. Craven, overseer of weaving, Minneola Mfg. Co., presided over the slashing and weaving session.

L. J. Rushworth who presided

Carding Problems Debated

The first question dealt with the amount of humidity which can be carried in the card room without injury to card clothing. Most of the men said that 50 to 55% is enough humidity, with the exception of G. R. Ward, superintendent of Highland Cotton Mills, Inc., High Point, N. C., who is experimenting with 60% humidity. He said that he believes 60% would do no harm unless the humidifier head were defective.

In a general discussion of one- and two-process drawing, Mr. Jennings declared that he prefers two processes, although he does not employ them throughout the mill. He double-processes the warp and single-processes the filling. Three years ago, he was doubling his warp yarn 76.448 times, but installation of single-process picking and long-draft spinning changed this to 72 on the same yarn. W. L. Davis, assistant superintendent, Proximity Mfg. Co., Greensboro, N. C., said that it is harder to detect the difference between one and two processes on fine numbers than on coarser yarn, such as the 8s to 19s which he spins. He uses one-process picking on the card, drawing, and fly frames; whereas, formerly, two processes were used on these machines. He does not think one-process helps him any. Several members expressed a preference for one-process drawing but were outnumbered by those who think doubling makes better yarn.

"In increasing card production, do you find it better to increase lap weight or doffer speed, the weight of the sliver remaining the same?" was the next question. Mr. Simpson said that the doffer speed could not be changed without changing the weight of the sliver and the line-up. J. C. Farmer, assistant superintendent, Carolina Cotton & Woolen Mills, Fieldale, Va., remarked that he believes a card producing a 60-grain sliver, with the doffer making 11, would not show an increase in sliver weight if the doffer were speeded up, due to the fact the doffer is geared to other parts of the machine, which would be speeded up in proportion. J. H. Armfield, superintendent, White Oak Mills and Proximity Mfg. Co., Greensboro, emphasized that although the weights of the sliver and lap vary in proportion to speed changes, the *draft* can be changed.

Consensus was that cotton should be aged as long as possible after opening in order to permit fluffing. This aging also allows the cotton to regulate its moisture content according to local conditions.

In a discussion of long-draft roving, Mr. Davis reported that a long-draft frame reduced end breakage in the spinning room and produced evener work when tested on the hardest material he runs—7% black sulphur-dyed 1 1/8 in. cotton. L. V. Andrews, explained that he runs sliver directly from the drawing frame to the intermediate frame and gets fairly even roving, usually making 1.10-hank roving from 58- or 60-grain sliver, draft being 7.5. This makes a strong yarn, but in some respects it is not so good as yarns made in a more orthodox manner, he said.

TOPICS discussed at Greensboro included card-room humidity, two-process drawing, doffer speed, ageing, long-draft roving, squeeze-roll covering, and shuttle life.

Consensus was that cork rolls should not be set closer as the diameter grows smaller with buffing, providing they are correctly set in the first place. One member said that he uses cork on his front rolls and leather on the rear rolls because he thinks cork on the back rolls would deteriorate before it wore out.

As to the practicability of equipping a sales-yarn mill with long-draft spinning, R. M. Barham, foreman of Wearwell Bedspread Mill, Leaksville, N. C., said that his firm has a mill equipped with long-draft machinery to make knitting sales yarn. Mr. Ward reported that his firm also has a sales-yarn mill equipped with long-draft machinery, and finds that it makes stronger and evener yarn than regular spinning.

Several systems for replacing worn aprons on long-draft spinning frames were offered. One of the most practical is to inspect and clean spinning periodically and replace worn material.

Slashing and Weaving

Mr. Craven, presiding over the slashing and weaving discussion, opened the session by asking how often squeeze rolls on slashers should be recovered. Mr. Barham, using a low-grade flannel, runs his two weeks. J. F. Graves, overseer of beaming and slashing, White Oak Mill, operating on blue denim, changes every six days, or about every 50 hr. He puts the new cloth on top with the old cloth over it until the former becomes set.

Maximum humidity and as much air as possible were said to keep the weave-room temperature down in hot weather. Location of the mill has some effect on this.

Average shuttle life varies with conditions in each mill, it was reported. D. F. Short, overseer of weaving, Consolidated Textile Corp., Lynchburg, Va., gets one year from a shuttle on 40-in. looms running 160 picks. W. E. Gammon, overseer of weaving, Riverside Mill, gets 5,600 loom hours per shuttle on 40-in. looms running 157 picks (making chambray goods)—an average of .74 shuttles per year for each loom. Dogwood shuttles were said to give longer life than persimmon. A. J. Matthews, overseer of weaving, warping, and slashing, Wearwell Bedspread Mill No. 1, Leaksville, gets 1,000 loom hours per shuttle on jacquards making heavy bedspreads.

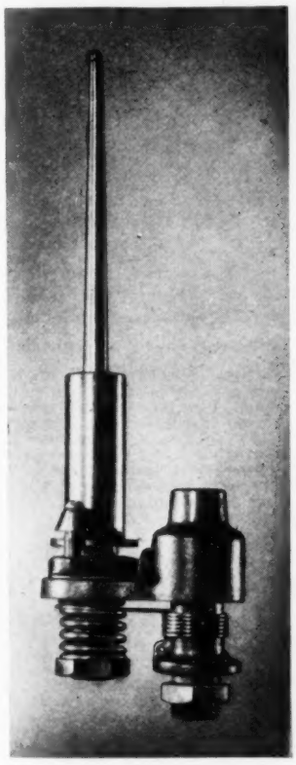
Looms should be oiled by trained oilers who go by oiling charts, according to several members.

NEW MACHINERY & PROCESSES

Improved Twister Spindle

The Ball Top spindle for silk and rayon twisters and 5B winders produced by Atwood Machine Co., Stonington, Conn., has been improved in several ways. The spindle swing has been skirted to provide protection against oil spray and prevent the accumulation of lint or dirt. A new type of preadjusted spring is also used. This spring is accurately calibrated, set to produce the tension required for optimum spindle operation, and never needs tightening or adjusting after it leaves the factory. The third feature is the new Bell Latch, which is designed to combine the advantages of a positive-acting, self-locking latch with easy opening.

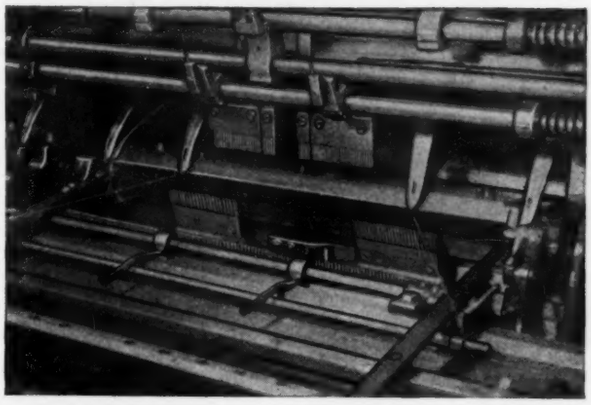
The spindle has a steel blade that is treated to give toughness



and elasticity. The step is a single, solid casting, equipped with an oil-retaining steel sleeve to give it large capacity.

Improved Bearing

Grease-shield ball bearings of improved construction are now being supplied in an increased range of sizes by Fafnir Bearing Co., New Britain, Conn. These bearings are equipped with single or double metal side-shields to aid retention of the lubricant and to exclude dirt and foreign matter. An improvement in the D type is the shortening of the rabbet, so that less of the inner ring is cut away, thus leaving a larger portion of the face to about a shoulder or lock nut in the mounting. In single-row bearings, the shield is introduced without increasing the normal bearing width, so that they are interchangeable with standard units. Double-shield (DD type) bearings are recommended where it is desired to retain the lubricant for longer periods under difficult service conditions.



Single-Unit Full-Fashioned Machine

Cessation of instep knitting for the knitting of heel tabs is accomplished by a new principle in the Schubert & Salzer Type HSU single-unit full-fashioned hosiery machine just announced by Alfred Hofmann, Inc., West New York, N. J. In the accompanying photograph of one section, which shows the needle bar removed to afford a better view, it will be seen that a special comb has risen on each side of the instep between the sinker head and needle bar. The needles for the heel tabs go to press against these combs, and it is obvious that while these combs are in the position shown the instep needles will not reach the lower edge of the sinker head and so will not press at all. No divided needle bar is involved, and the press combs are adjustable from a central position at both ends of the machine; therefore the width of the instep can be changed at will.

In place of the usual narrowing chain, the machine is equipped with a small jacquard controlled by a card; and practically all functions of the machine, such as actuation of the picot bars, as well as narrowing and lace fingers, and all necessary stops of the machine, are accomplished by this central control without the setting of narrowing and lace chains. Standard equipment includes pointed heel, three-carrier striping, picot, modified lace attachment with a twelve-needle range, short needles, hook knocking-over bits, individual needle bars, divided narrowing rack with center control, divided pointex rack, two slackers, and other recent improvements.

High-Intensity Stroboscope

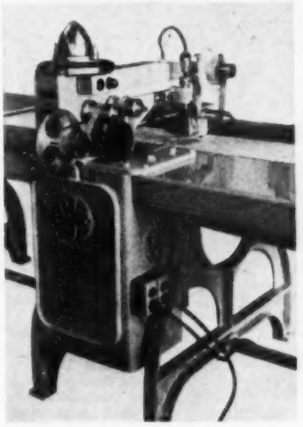
Designed primarily for the study of high-speed rotating or vibrating objects, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., is now marketing the PSE-2 Stroboglow, by means of which objects having recurrent periodic motions may be made to appear at rest, or to trace their prescribed course in either a forward or backward direction at any desired reduction in speed. A 300,000 cp. flash is produced, with a maximum flashing speed of 5,000 per minute. Periodic movement from 100 to 30,000 cycles per minute can be analyzed. The Stroboglow can be used for measurements of approximate rotational speeds, although it is not intended for this application.

Automatic Transfer Machine

An automatic transfer machine, which also serves as a table upon which the folded stockings are banded and boxed ready for shipment, has been developed recently by St. Joseph Iron Works, St. Joseph, Mich., and was shown publicly for the first time at the Knitting Arts Exhibition last month. Advantages cited for this equipment are savings in labor, high-speed production, no smeared transfers, and no iron marks.

The St. Joe automatic transfer machine, as it is called, consists of a steel table 14 ft. long, upon which—running its entire length—is an endless belt. Integral with the table is the transfer device proper, which comprises a motor, belt- and iron - operating mechanism, transfer-roll holders, guides, and feeding and winding mechanism. Operation of the machine is as follows: The hosiery, properly folded before it arrives at the machine, is placed on the belt by an operator at the head end of machine, along which it is carried by intermittent motion until it arrives directly underneath the stamping iron. The stamping iron, which is suspended on an overhead arm, operates with an up-and-down movement, the mechanism of which is synchronized with the belt movement, thus permitting the stamping of material when belt is stopped, and the carrying forward of material on the moving belt when the iron is raised. After the transfer has been applied, the hosiery continues moving on the belt and is carried up to the banding and packing operators. These operators stand on both sides of the table ready to remove and pack the hosiery as it reaches them. When paper folds are used, an automatic paper turner folds the paper over the hosiery after the transfer operation. Thus the hosiery reaches the boxing end of the table resting neatly and accurately within the folded paper.

For the transfer operation, the machine automatically takes the transfer paper from the roll, guides it under the iron for stamping, and rewinds the used paper out of the way. Transfer rolls for use on the machine can be supplied regularly spaced on the paper, and adjustments can be quickly made on machine to handle the transfers as spaced. Changing of transfer requires not over ½ min. The machine is equipped with a quadrant regulator which controls the paper speed. This feed is also synchronized with the stroke of the stamping iron to keep the transfers coming squarely under the iron. Stamping irons can be provided for

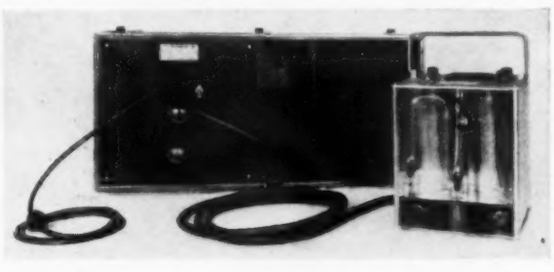


various sizes of transfers, and changes from one size to another can be made quickly.

Spinning-Roll Covering

Everlastic, a spinning-roll covering for cotton and wool mills, which has as its basic ingredient the synthetic-rubber compound Duprene, has been placed on the market by Roger W. Cutler, 141 Milk St., Boston, and is also available through a number of roll-covering shops. The following features are listed by the company: covers are oil-proof, non-oxidizing, and unaffected by temperature changes; the density and resiliency of Everlastic may be regulated during the compounding of the material, and some cotton mills have found it possible to remove up to 30% of the top-roll weights, while in worsted and mohair mills from 25 to 80% of the weights have been removed, with consequent savings in power and in wear on the roll; covers may be ground, buffed, and cemented to the arbor with a firm bond; resiliency is independent of the wall thickness; and yarn break is not affected even after two or more buffings; average life of covers is placed at 10,000 hours.

Mills having the necessary mounting, grinding, and buffing



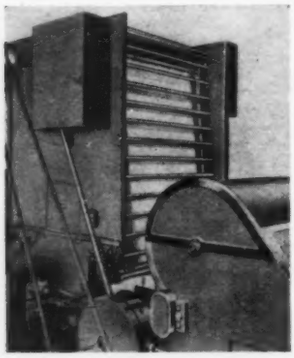
apparatus may purchase Everlastic in 33-in. hose lengths, while others can secure their requirements through roll-covering houses.

Blending Reserve Improved

A number of changes have been made in the cleaning and blending reserve manufactured by Saco-Lowell Shops, 147 Milk St., Boston. The new Model 3 has the following improvements:

1. The four lifting belts have been abandoned and replaced by two aprons. The inside apron is a full-slat apron built on belts, while the slats are placed at 4-in. intervals on the outside apron. This change has been made to make the machine self-threading and choke-proof, and to allow a wide variety of stock to be processed without any machine changes.

2. The new model has only a single, fluted, wooden press roll,



which is so located that it also acts as a strip roll to prevent cotton from being carried back by the apron.

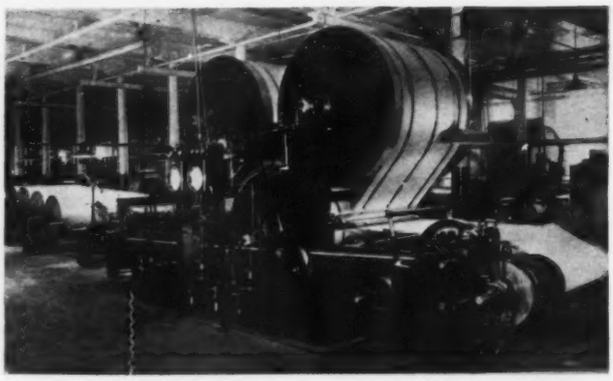
3. The doffer has been made cam-shaped, its construction made more rugged, and it now carries six steel blades.

4. Two additional openings on each side have been provided for setting the adjustable plate.

Inclosed, Fan-Cooled Electric Motor

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has developed a fan-cooled, totally inclosed, d-c. motor having the external fan and shroud on the commutator end, with the same accessibility to the armature as on straight, totally inclosed motors. The removal of one cover from a bracket opening permits

accessibility to the brushes. This is accomplished by casting integrally the inner bearing bracket and the outer air shroud. The combination bracket has air passages between the shroud and the inner bracket, permitting the use of an external blower on the commutator end. With the blower on the commutator end, the motor can be mounted snugly against a gear case or wall.



High-Speed Rayon Slasher

Running rayon warps at a speed of 80 to 100 yd. per min. is possible with the rayon slasher now being manufactured by Saco-Lowell Shops, 147 Milk St., Boston, after experimental work in conjunction with Manville Jenckes Co., Manville, R. I. The machine makes use of the stretch-control device described in TEXTILE WORLD, March, 1935, by means of which the amount of stretch that is to be imparted to the yarn can be accurately determined. In a recent test, the actual length of a warp was only 1 yd. off from the theoretical 1,900 yd. The amount of stretch can be varied from 2 to 15% by means of change gears.

Three dry cans are used, allowing progressive drying and high speed. Temperatures of the cans and of the size, as well as level of the size, are controlled. When used in connection with a magazine creel, the slasher turns out warps with a lease, so that they can be tied-in by machine. The magazine-creel feature consists of having two creels of section beams mounted on tracks running at right angle to the slasher. Each creel has a stand for lease rods and, while one set of beams is being run off, the second is made ready and leased. When the first set is run out, the empty creel is pushed aside and replaced by the full creel.

Color-Matching Lamp

A newly designed lamp combination for color matching, which gives a light intensity approximately four times the daylight available at a window, has been announced by Macbeth Daylighting Co., Inc., 229 W. 17th St., New York. Two color temperatures of light are used. In the left-hand or daylight section the light quality or color temperature is equivalent to overcast sky, between 6,000 and 7,000°K. This section is equipped with a standard, 1,000-watt, inside-frosted bulb and a laboratory-tested daylight filter. The lamp at the right furnishes horizon-sunlight (sunlight shortly after sunrise and shortly before sunset) of a color temperature of 2,000° K. In this section there is a special, 350-watt, tungsten-filament lamp and a clear Pyrex cover glass. The lamp is rated for 10,000,000 hr. of burning.

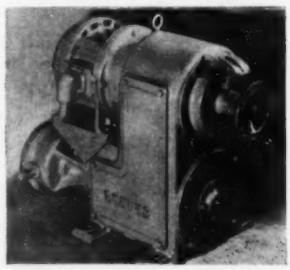
Matching under these two widely separated light qualities is said to assure an equally satisfactory match anywhere, at any time. Due to the high intensity, it is not necessary to screen out other light. Circuits are controlled by tumbler switches. The top switch is single-pole, off-and-on, while the lower is two circuit, alternating from daylight to horizon-sunlight for simultaneous contrast observations. Both lamps are inclosed, dust-tight, and vapor-proof. Heat-insulating covers reduce the heat radiation 97%, permitting a free circulation of air over the reflectors.

Electric Roll-Grinder

A portable grinder, for use in refinishing textile rolls, has been announced by Hisey-Wolf Machine Co., Cincinnati, Ohio. Features are as follows: grinder is readily adapted for use in any lathe, and in some machines rolls can be ground without being removed; operation at practically the same speed under any load within the rated capacity, making for uniformity of grinding; as power does not depend upon speed, ordinary vitrified wheels can be used; the design permits mounting the grinding head close to the roll; the spindle speeds obtained by the various ratios of pulleys are selective, and in no way limited by the speed of the motor.

Variable-Speed Drive

The Vari-Speed Motodrive developed by Reeves Pulley Co., Columbus, Ind., combines any standard make of constant-speed motor, variable-speed control mechanism, and—where required—speed-reduction gears in one compact, self-contained inclosure. Speed variation is infinite between predetermined limits, and changes are made by turning a handwheel. A dial indicator registers speeds on a scale calibrated from 1 to 6. The Motodrive utilizes the mechanical principle of a V-belt running between two sets of cone-faced disks, which are adjustable in diameter and mounted on parallel shafts. One shaft receives power at constant speed from the motor and the other transmits power at infinitely ad-



justable speeds to any driven machine.

The drive is available in both horizontal and vertical designs, and each design is built in four sizes, which take motors from ¼ to 7½ hp. and which cover speed ratios from 2:1 through 6:1. Reduction units of helical-gear type, in ratios up to and including 189:1 may be incorporated in the drive.

Oil Cups

Alemite division of Stewart-Warner Corp., 1888 Diversey Parkway, Chicago, announces an expansion of its manufacturing activities to include the production of oiling devices. The first is the Thermatic oil cup, which is designed for use where a constant, slow flow of

oil is desired. The cup requires no attention except filling, and operates by the expansion of air due to the normal increase in temperature of a running bearing. A rise of 1.8° F. is said to be sufficient to start the flow of oil, and even when not in use the normal fluctuation of tem-

perature in the room will keep the bearings of idle machinery lubricated. There are no moving parts in the cup.

Another product is the Microflow cup, which is adapted to bearings which require a continuous flow of oil in small, adjustable quantities. The cup makes use of a resistance unit consisting of a spiral groove in a cylindrical plug, which allows a larger opening in the discharge valve and at the same time permits a fine adjustment of oil flow. Oil is strained through an 80-mesh screen.

Non-Cracking Fence Wire

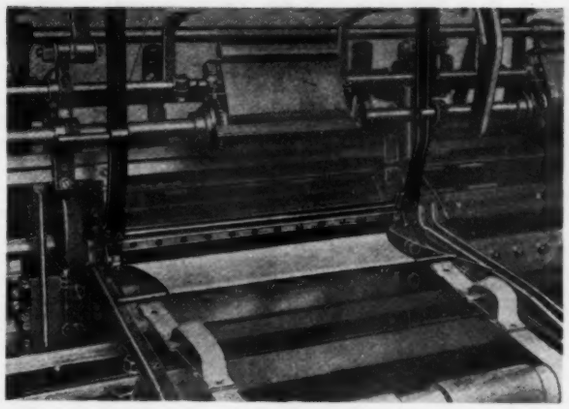
Anchor Post Fence Co., Eastern Ave. & Kane St., Baltimore, Md., has adopted Bethanized wire for both fence fabric and barbed wire. According to its manufacturers, this new wire has a protective zinc coat 99.-997% pure and will give longer wear than it has been possible to obtain previously. The coating is applied to the steel base wire by means of a newly developed electrolytic process that deposits the zinc uniformly. In tests, No. 9 gage wire has been wound around its own diameter and even bent flat upon itself without cracking the coating.

Hosiery Welt Turner and Frictionless Draw

Two improvements applied to the Kalio "Complet" (single-unit) full-fashioned hosiery machine are announced by Louis Hirsch Textile Machines, Inc., 47 West 34th St., New York.

One is an automatic welt turner. It consists primarily of a welt bar so mounted on the machine that it may be swung down for the welt operations and up out of the way for the knitting of the remainder of the stocking, in which position it allows a clear view of the sections and undisturbed working of other attachments. At the commencement of the welt the first course of stitches is removed from the needles by the welt bar. The bar then moves away from the needles until a short length of fabric has been knitted, at which time the welt rod is inserted by hand. The fabric now extends from the needles around the welt rod and back to the welt bar and continues to be pulled forward underneath the latter. When welt knitting is completed, the welt bar transfers the first row of stitches back on to the needles. This last operation is shown in the accompanying photograph.

The other development is a



frictionless draw motion, which provides a full shock absorber and constant lead control for all selvage-to-selvage carriers. The speed of the carriers is reduced from maximum to zero, and there is no blow whatever on the end stop. The lead of the carrier ahead of the sinkers is the same under the leg narrowings as when starting the welt, this assuring, it is reported, the same loop formation throughout.

There are two coulier cams, one for the main carrier driving rod, and another for the slurbar travel, each having a constant stroke. The constant-stroke main-carrier driving rod is provided with a vertically actuated driving slide carrying two rollers. One roller rides between two curves which are positioned from the narrowing mechanism. These curves lift the slide at the end of the yarn-carrier traverse so that the other roller of the driving slide is gradually disengaged from the rod by which the selvage-to-selvage carriers are driven. The speed of these carriers is gradually reduced to the point of zero speed when the end stops are reached. In the beginning of the next course the carriers are likewise gradually picked up.

Business News

Terrell Machine Co., Charlotte, N. C., has purchased the plant of **Piedmont Sundries Co.,** at the corner of Mint and Palmer Streets, together with the bobbin plant, fronting on Palmer Street. Operation of the plant will be continued with the same personnel, headed by I. F. Clonts, who has been connected with the Piedmont Sundries Co. since 1910. Product consists of roving bobbins, skewers, spools and similar accessories. Piedmont Sundries Co. was organized in 1909 by Jeremiah D. Goff, H. W. Eddy and H. C. Clark as a roller covering shop. It later was expanded to include the lines that are being manufactured at present. Sales will be handled through supply houses as heretofore and, in addition, through the sales organization of the Terrell Machine Co.

U S Bobbin & Shuttle Co., Manchester, N. H., has elected Thomas A. Francis as vice-president. Mr. Francis has been a director of the company for the last year and until recently was president of T. A. Francis & Co., cotton brokers.

Walker Mfg. Co., Inc., Philadelphia, has opened a New York office at 171 Madison Ave. in charge of Hendrik Van Brederode. He will cover New York, New Jersey, and the New England States in the sale of steel heddles, frames, and reeds.

A. B. Carter Co., Gastonia, N. C., dealers in mill devices, has been appointed to manage a branch office of the company at Newnan, Ga.

T. Dewhurst of Atwood Machine Co., Stonington, Conn., sailed Apr. 29 for England on a business trip of two or three months' duration. He will spend the time in England and on the Continent and return to this country in July.

John P. Maguire & Co., Inc., New York, have added Hon. Charles Francis Adams and Frederic C. Dumaine of Boston, and Mortimer N. Bruckner and Grayson M-P. Murphy of New York to the board of directors.

Motor Carrier Servicing Corp., 521 Fifth Ave., New York, has been formed as a non-profit organization by motor fleet owners, forwarders, and brokers. Among the objectives is the establishment of trucking terminals throughout the country.

Pfaltz & Bauer, Inc., have acquired additional new quarters in the Empire State Bldg., New York.

E. I. du Pont de Nemours & Co. have transferred J. D. Sandridge from Greensboro, N. C., to Charlotte, N. C. His place as manager at Greensboro is taken by J. T. McGregor.

Borne, Scrymser & Co., New York, have lately installed their system for conditioning cotton in the following mills: Sibley Mfg. Co., Augusta, Ga.; Mollohon Cotton Mills, Newberry, S. C.; Roanoke Mills, Roanoke Rapids, N. C.; Springs Cotton Mill, Kershaw, S. C.; Asheville (N. C.) Cotton Mills; Norwood (N. C.) Mfg. Co.; Mercury Mills, Charlotte, N. C.; Cannon Mills, Salisbury, N. C.; Anchor Mills, Huntersville, N. C.; Virginia Cotton Mills, Swepsonville, N. C.

G. E. McMinn, formerly with Bahan Textile Machinery Co., Greenville, S. C., has joined the sales staff of E. F. Houghton & Co., Philadelphia. His headquarters will be in Charlotte, N. C., although he will continue to live in Greenville, S. C.

Scott & Williams, Inc., New York, have elected Walter L. Toy, formerly vice-president to the post of president, succeeding the late H. B. Swinglehurst. Mr. Toy has been a leading

W. L. Toy, now president of Scott & Williams, Inc.

figure in the manufacture of hosiery machinery for many years. He started with the Scott & Williams plant in Laconia, N. H., in 1909, and, after one year in the Boston office, came to New York to take charge of sales in 1915. In 1929 he was appointed vice-president.

Hatch & Reutlinger, 366 Fifth Ave., New York, are celebrating this month the tenth anniversary of the founding of the partnership.

F. & A. Stirn, 1 West 37th St., New York, have been appointed sole agents in the United States for the ingenious dobby patterns produced in France by the Delamare method of design, which exhausts mathematically all the possibilities in countless combinations of entering and shedding specifications. Customers may make selections from actual cloth samples, which then become their exclusive property.

Industrial Dryer Corp., Stamford, Conn., has lately delivered H-W yarn conditioners or twist setters to the following mills: Malina Co. of N. J., Paterson, N. J., 2 units; Tynan Throwing Co., Paterson, N. J.; Concord (N. C.) Knitting Co.; Nolde & Horst Co., Reading, Pa. (built conditioner under H-W patents); Concord (N. C.) Knitting Co.; New London (Conn.) Fabrics Corp.

Cocker Machine & Foundry Co., Gastonia, N. C., is now occupying its newly constructed office building.

Gastonia Roller, Flyer & Spindle Co. and **Gastonia Brush Co.,** both of Gastonia, N. C., have rebuilt their plants which were destroyed by fire.

The very significant progress which Cellophane has made as a packaging material for textiles was graphically illustrated recently at an exhibition held in the offices of the duPont Cellophane Co., Inc., Empire State Building, New York. This display highlighted hosiery, knitted underwear and outerwear, domestics, accessories, men's shirts, and many other textile lines. Distinctive printing and cut-outs on the transparent wrappers added a new touch to many of the packages.

THE PERSONAL PAGE

W. D. Anderson, Jr. new president of Bibb Mfg. Co.

R. C. Dick, now treasurer and general manager, Pequot Mills

George R. West, president of Dixie Mercerizing Co., Chattanooga, Tenn., has been elected president of the newly organized Mebane (N. C.) Yarn Mills which have leased the plant of Durham Hosiery Mills. **E. S. Chodd** is secretary and treasurer. **R. H. Kale,** for the last fourteen years treasurer of Hall-Kale Mfg. Co., Troutman, N. C., has resigned to become superintendent and general manager of the company.

Roy L. Campbell, is president of the recently formed Decatur (Tenn.) Hosiery Mills, Inc., and **G. C. McKenzie** is secretary and treasurer.

H. C. Whitman, Jr., has been elected a member of the board of directors of the Esmond (R. I.) Mills to succeed the late **Dexter Stevens,** it is announced by **H. C. Whitman,** president.

R. C. Dick has assumed the post of treasurer and general manager of Pequot Mills, Salem, Mass., his election to which was reported in our last issue.

Matthew A. Collins, vice-president and superintendent of Lockport (N. Y.) Cotton Batting Co., was guest of honor at a luncheon Apr. 27 in celebration of the 40th anniversary of his association with the company.

Daniel C. Gilmartin has been transferred by the Berkshire Knitting Mills from the New England territory to take charge of the Mid-West area where he succeeds **J. Frank O'Keefe,** who resigned, at Chicago.

Arthur Ullman has resigned as secretary-treasurer of Ullman Silk Co., New York converters, to join Guggenheimer & Ullman, securities.

Arthur H. Dick, for six years assistant to **R. C. Dick** when the latter was treasurer of Louisville (Ky.) Textiles, Inc., has been elected president and treasurer of that company. **Phillip H. Tulley,** lately president, has retired.

T. H. Muller, vice-president, Laros Textiles Co., and long a leading figure in the underwear industry, has resigned that post and, effective June 1, will become associated with Julius Kayser & Co. in charge of underwear sales.

J. McBride Holt, vice-president of the L. Banks Holt Mfg. Co., Graham, N. C., was recently presented with a gold watch by the company; on April 16, he completed 50 years of service.

Frank E. Curran, Greensboro, N. C., treasurer of the Mock-Judson-Voehringer, Inc., has been elected chairman of the budget committee of the Greensboro Community Chest

R. G. Hoch is treasurer and general manager of Biltmore Hosiery Co. which has just purchased a mill at Hendersonville, N. C.

W. J. Carter, vice-president, Burlington (N. C.) Mills, has resigned. Mr. Carter has long been a leader in development of synthetic yarn fabrics.

Harry J. Blake, of Blake & Kendall, wool dealers, Boston, has been elected secretary of the Associated Wool Industries, succeeding **Claude H. Ketchum** who resigned because of ill health. Other officers continued unchanged.

Dr. Paul H. Nystrom, head of the Limited Price Variety Stores Association, **Otto Froelicher** of Schwarzenbach Huber Co., and **Hatsuyiro Yoshida,** of Mitsui & Co., have been elected directors of the U. S. Testing Co., Inc., it is announced.

George E. Scheer, formerly of the National Weaving Co., has become associated with **E. L. Whitaker** in the New York office of the American Finishing Co., Memphis, Tenn.

Howard R. Hart, formerly general superintendent of the Aiken, Bath, Langley, and Clearwater plants of United Merchants & Manufacturers, Inc., has been made assistant to **J. B. Harris,** vice-president of Greenwood (S. C.) Cotton Mill, Mathews Cotton Mill, Greenwood, and Ninety-Six (S. C.) Cotton Mill. Before going with United Merchants & Manufacturers, Mr. Hart was superintendent of Victory Mfg. Co., Fayetteville, N. C., and Durham Cotton Mfg. Co., East Durham, N. C.

Ben Cone, Herman Cone and associates recently bid $1,650,000 for a group of bank buildings in Greensboro, Raleigh, Wilmington, Burlington, Monroe, Tarboro and Spencer, N. C.

Jud Holt, who has been managing the Canadian plant of Aberfoyle Mfg. Co., is in charge of moving a mercerizing range from Chester, Pa., to Melbourne, Australia, where it is reported a plant will be started up shortly. **S. P. Ruff** is being transferred from Chester to Guelph, Ont.

W. L. Steele, Jr., formerly superintendent and assistant treasurer of Arista Mills Co., Winston-Salem, N. C., has entered upon new duties of secretary-treasurer and general manager of Locke Cotton Mills Co., Concord, N. C.

Stuart H. Sherman, for the last year, manager of Somerset Mills, Roxboro,

Textile Calendar

Cotton Manufacturers Association of Georgia, Hotel General Oglethorpe, Savannah, Ga., May 21 and 22, 1936.

National Cotton Week, June 1 to 6, 1936.

Southern Textile Association, annual convention, Mayview Manor, Blowing Rock, N. C., June 19 and 20, 1936.

Committee D-13, A.S.T.M., annual meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., July 2, 1936.

American Association of Textile Chemists & Colorists, annual meeting, Providence, R. I., Dec. 4 and 5, 1936.

R. L. Whitman, in charge of sales for Nashua Mfg. Co.

S. H. Sherman now superintendent of Trenton Cotton Mills

N. C., manufacturers of terry towels, recently was made superintendent of Trenton Cotton Mills, Gastonia, N. C. Mr. Sherman spent the two previous years in Philadelphia selling cotton yarns for John F. Street Co., and before that was superintendent and assistant treasurer of Nelson Cotton Mill Co. and Lenoir Cotton Mill, Lenoir, N. C. **A. P. Richie,** superintendent of Dixon Mills, Inc., and Trenton Cotton Mills, will continue as superintendent of the Dixon plant.

A. G. Furman, Jr., has been elected to the board of directors of Southern Bleachery & Print Works, Taylor, S. C., succeeding the late James F. Gallivan.

Robert E. Ligon, vice-president and general manager of Gluck Mills and Equinox Mills, Anderson, S. C., both units of Wellington Mills, Inc., Boston, has resigned. He will retain his position as a member of the board of the latter corporation. It was stated that no succeeding general manager would be appointed.

J. B. Reeves has resigned as vice-president and assistant treasurer of Dilling Mills, Kings Mountain, N. C., and has accepted the position of secretary and treasurer of Ranlo (N. C.) Mfg. Co., succeeding **J. M. Sherer,** resigned.

Julius K. Ellis, former resident manager of Bradford Mills of American Woolen Co., Louisville, Ky., is now secretary and general manager of National Worsted Mills, Jamestown, N. Y.

Herbert J. Woods, formerly with Goodyear Cotton Mills, New Bedford, Mass., has become superintendent of Clyde Fabrics, Inc., Newton, N. C.

W. N. Pitman has resigned his position with Bibb Mfg. Co., Macon, Ga., to become affiliated with Wilson & Co., Greenville, S. C., cotton factors.

W. H. Taylor, agent, Slater (S. C.) Mfg. Co., has been made vice-president of Slater Mills, Inc., Webster, Mass., succeeding **John T. McManus,** resigned. **William Zophi,** superintendent of the Webster plant, will continue in his present capacity. Mr. Taylor will supervise operations of the Slater interests from the South Carolina office.

T. H. Burkhardt, vice-president of Burlington Mills, Greensboro, N. C., recently returned from a four months' tour of European textile centers, visiting France, England, Germany, Belgium and Italy. **C. H. Gingher,** resigned as purchasing agent, has been succeeded by

W. S. Pepperell. Robert D. Porter, formerly with J. E. Sirrine & Co., is chief engineer.

David Lindsay, treasurer and agent, Spinners Processing Co., Spindale, N. C., for some time has been acting general manager of Park Yarn Mills Co., Kings Mountain, N. C., in addition to his regular duties.

J. Frank Morrissey, who has served as superintendent of the Harris (R. I.) Mill of Interlaken Mills for twelve years, has been appointed as general superintendent of the company, with supervision over the Harris plant and the finishing plant at Fiskeville. **James J. Lindsay** has been named superintendent of Harris Mill, while **Russell B. Snow** will serve as superintendent of the finishing plant.

Herman Weisler has been appointed manager of the Hopewell, Va., plant of Tubize-Chatillon Corp., succeeding **Raymond S. Burrows** who has taken charge of the Brazilian unit of the company.

William Sully, who has been general superintendent of the Lawton Mills Corp., Plainfield, Conn., has been appointed general superintendent of manufacturing for the Farr Alpaca Co., Holyoke, Mass. His assistant at Plainfield, **Frederick Hodgkinson,** goes to Holyoke in the same capacity.

M. O. Alexander, for many years superintendent of Woodside Cotton Mills, Greenville, S. C., has been made general superintendent of all the mills in the Woodside group, which includes plants at Greenville, Fountain Inn, S. C., Simpsonville, S. C., Easley, S. C., and Liberty, S. C. **J. T. Bray,** overseer carding, succeeded Mr. Alexander as superintendent of Woodside mill.

Philip F. O'Brien, of Straubenmuller Textile High School, New York, was elected president of the New York Chapter of Lowell Textile Institute Alumni at a recent meeting. **George J. Bienstock,** of Yorkshire Worsted Mills, was elected vice-president; and **R. L. Matthews,** General Dyestuffs Corp., secretary-treasurer.

B. B. Brown, who resigned recently as manager of Efird's store at Florence, S. C., has become affiliated with the E. M. Holt Plaid Mills, Burlington, N. C., as an officer in charge of selling the mill's output in a projected chain of retail stores.

Wm. H. Broadhead, formerly superintendent of Camden (Me.) Woolen Co., is now president and general manager of the newly formed Hopewell Mills, Inc., which has taken over the Brookside Woolen Co. of South Glastonbury, Conn.

Ruth O'Brien, U. S. Bureau of Home Economics, has accepted the chairmanship of A.S.T.M. Committee D-13's new Subcommittee on Household and Garment Fabrics.

J. Schulter, of Columbus, Ga., will be associated with **C. A. Butterworth,** in a new mill enterprise in Summit, Miss.

Charles D. Gray, in charge of southern and western sales for Textiles, Inc., Gastonia, N. C., has resigned to accept a position with Kennington & Finn, Gastonia waste dealers.

O. B. Haney has been made superintendent of the Waco, Tex., plant of Texas Textile Mills, Inc., having been transferred from the Dallas, Tex., plant.

R. M. Moore has been appointed manager of the newly organized Lorraine Hosiery Mill, Sweetwater, Tenn.

George W. Murphy, formerly superintendent of Columbus (Ga.) Mfg. Co., has accepted a similar position with the Tifton (Ga.) Mills, succeeding **W. T. Hunt,** resigned.

C. W. Gaddy, manager of the knitting division of Wiscassett Mills Co., Albemarle, N. C., is recovering from an operation he recently underwent at Johns Hopkins Hospital in Baltimore.

Gerald Elliott has been promoted to the position of superintendent of William Carter Co., Barnesville, Ga.

Charles D. Gray, for five years prominently associated with Textiles, Inc., Gastonia, N. C., has resigned to become associated with the firm of Kennington & Finn, waste dealers, Gastonia.

J. F. Garvin has become manager of the Mayfair and Rayon Fabrics Corp., Burlington, N. C., both affiliated with Burlington Mills. Mr. Garvin was formerly superintendent of weaving at Dilling Mills, Kings Mountain, N. C.

E. P. Cogswell, for a number of years superintendent of Chadwick-Hoskins Mills, Charlotte, N. C., has announced his resignation.

Charles F. Foster, recently with the Cocheco Woolen Mfg. Co., East Rochester, N. H., has become superintendent of the Robinson Woolen Mill, Oxford, Me., succeeding **James W. Stanley** who resigned after six years service to join a mill in Lowell, Mass. The Robinson plant had been shut down for three weeks because of flood.

H. B. Miller is the new general superintendent of the Pee Dee Manufacturing Co., Rockingham, N. C.

Obituary

Albert Farwell Bemis, aged 66, a director and formerly president of Bemis Bros. Bag Co., Boston, and a former president of the National Association of Cotton Manufacturers, died in a hospital at Phoenix, Ariz., on April 12.

Walter C. Baylies, aged 74, president of Amory Browne & Co., Boston and New York, and formerly head of Nashua Mfg. Co., died in Boston, May 3.

Joseph Bancroft, aged 61, for 34 years associated with Joseph Bancroft & Sons Co., Wilmington, Del., and from 1928 to 1932 chairman of the board, died at the Homeopathic Hosptial, Wilmington, May 6, from results of a recent fall. He was a graduate of M.I.T. and a director of numerous companies.

W. H. Dismukes, Sr., aged 70, secretary and treasurer of Columbus (Ga.) Mfg. Co., died April 18.

James Stanley Dow, aged 40, president of Marion Woolen Mills, Inc., Wyoming, R. I., died on April 20.

Chester A. Bidden, aged 52, secretary-treasurer and buyer of Snow White Bleachery, Inc., Royersford, Pa., died April 21.

Edmund J. Sullivan, treasurer of Standard Mohair Plush Co., Hyde Park, Mass., died on April 5.

Chalmers Hutcheson, aged 44, director and Montreal manager of Canadian Spool Cotton Co., a subsidiary of J. & P. Coats, Ltd., died on April 6.

Charles M. Harter, 71, president of the Nesco Knitting Mills, Bedford, Pa., died suddenly at his home in that city April 13.

Louis Monast, aged 73, formerly president of Central Warp Co., and at one time vice-president of Unity Warp Co., Pawtucket, R. I., died in that city on April 16.

Sol A. Brumbach, aged 71, formerly president of A. J. Brumbach, Inc., Esterly, Pa., died on April 15.

William D. Twiss, aged 71, for many years superintendent and agent of Everett Mills, Lawrence, Mass., died at his home in that city on April 4.

J. Henry Butler, aged 46, formerly superintendent of Sweetwater (Tenn.) Hosiery Mills, was fatally shot, April 12, by burglars in Cincinnati, Ohio, while at work at night for Davis Clothing Co.

Clarence Owen Judy, aged 54, assistant superintendent of Santee Mills, Orangeburg, S. C., plant, died April 13.

W. Fred Murch, aged 77, foreman and oldest employee in point of years of service at the plant of Davis & Furber Machine Co., North Andover, Mass., died at the Lawrence General Hospital on April 6.

William H. Bower, aged 87, for over 30 years agent of the Columbia Mill, Lewiston, Me., died at Auburn, Me., after a long illness.

Elwood Eugene Elliott, aged 65, for the last 18 years superintendent of the Kezar Falls (Me.) Woolen Co. and a worker in woolen mills since he was nine years old, died suddenly last month.

John H. Murphy, president of the Putnam Knitting Co., Cohoes, N. Y., died on March 28.

Edwin Sumner Agard, aged 84, former vice-president, William Sumner Belting Co., Tolland, Conn., died April 16 in Portland, Oregon.

Joseph H. Valentine, aged 80, former president, Warren Woolen Co., Stafford Springs, Conn., and father of the present president, died April 21 in Pinehurst, N. C.

Victor G. Beutell, for 12 years president of the Hodges Carpet Co., Indian Orchard, Mass., until his resignation in 1934, died April 17 at Pelham, N. Y.

J. Eugene Elliott, aged 43, an executive of the Campe Co., New York, died suddenly Apr. 13. Prior to last fall he was with Riegel Textile Corp.

William H. Stedman, formerly superintendent of the Merrow Machine Co., Hartford, Conn., and with the company for 50 years, died April 6, aged 72 years. As a boy he entered the employ of J. B. Merrow & Son, knitting mill, and learned the trade of machinist. He made many inventions.

William Elliott White, aged 58, secretary and treasurer of Travora Mfg. Co., Graham, N. C., for 35 years, died March 21.

Charles A. Julia, agent of Farnsworth Co., Lisbon Center, Me., until his retirement last summer, died at his home.

Dewitt Clinton Johnson, aged 50, general manager of Rock Hill Mfg. Co., Rock Hill, S. C., died recently.

Clarence Sims, aged 38, assistant manager of Sterling, Conn., plant of United States Finishing Co., lost his life in an automobile accident on March 28.

H. J. Viens, aged 49, superintendent of Lorraine Mfg. Co., and president of the Textile Associates of New England, died at Pawtucket, R. I., March 27.

TEXTILE WORLD'S

Cotton Digest

THE job done by fine goods mills in balancing production with demand received well-merited recognition last month from Dr. C. T. Murchison, president of the Cotton-Textile Institute, in an address before a joint meeting of the New Bedford and Fall River cotton manufacturers associations.

Pointing out that present stocks of fine goods are the lowest recorded since 1929 with the exception of midsummer 1933 (accounted for by pre-NRA demand), Dr. Murchison said: "This is an extremely important development for the fine goods group, as burdensome prices have, on many occasions and for long periods, been a depressing influence on price. The group has furnished an example of moderation in production and a determination to produce in accordance with orders taken rather than in anticipation of them—a splendid example for the rest of the industry."

Although it must be emphasized that the concentration of fine goods production in a relatively limited number of mills and within a restricted geographical area makes this adjustment job less complicated than is true of some other groups in the industry, nevertheless the job *has* been done and certainly represents a goal toward which other branches may well strive."—*Editor.*

S.C. Manufacturers To Meet May 22 and 23

Over 100 South Carolina cotton manufacturers are expected to attend the annual convention of the Cotton Manufacturers Association of South Carolina scheduled to be held May 22 and 23 at High Hampton, N. C. The meeting will open Friday night with reports from S. Marshall Beattie, president, and William P. Jacobs, secretary. Committee reports will be heard Saturday morning from Alfred Moore, L. D. Blake, Captain Ellison D. Smyth, T. M. Marchant, F. W. Symmes, R. E. Henry, Allen Johnson, J. P. Gossett and W. S. Montgomery. A golf tournament will be held Saturday afternoon, and the annual banquet will take place that night. Several outside speakers have been invited including Dr. Claudius T. Murchison, president of the Cotton-Textile Institute.

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Foreign Trade Statistics

Imports of cotton cloth for consumption during January totaled 346,945 sq. yd. unbleached cloth valued at $57,538, 6,381,496 sq.yd. bleached goods valued at $342,578, and 2,760,494 sq.yd. printed or colored goods valued at $452,220.

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National Cotton Week

The national scope of National Cotton Week, scheduled this year June 1 to 6, is emphasized by the elaborate tie-in promotional campaigns prepared by indirectly affected interests such as soap and washing machine manufacturers, as well as by dealers in cotton goods. Preceding the event and all during the week, window displays, newspaper and magazine advertising, radio programs, etc., will feature the importance of cotton in the average family's everyday life. Over 40,000 retail stores are expected to take part.

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Joint Tax Group For Sellers and Converters

Appointment of a joint market committee for the selling houses and for converters is expected to settle numerous differences of opinion pertaining to process tax disputes. The committee, which was appointed late last month, consists of three members from the Textile Fabrics Association and three members from the Association of Cotton Textile Merchants.

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Carolina Yarn Association Elects Officers

Carolina Yarn Association held its spring business meeting at the Charlotte (N.C.) Country Club, April 14. The session was presided over by Bruce Griffin, of Industrial Rayon Corp., retiring president. New officers were elected as follows: Joseph R. Morton, of Tubize-Chattilon Corp., Greensboro, N. C., president; S. L. Diggle, of Dixie Mercerizing Co., Charlotte, vice-president; N. P. Murphy, of Oscar Heineman Corp., Greensboro, N. C., secretary; and Henry Lineburger, of Aberfoyle Mfg. Co., Belmont, N. C. treasurer.

R. C. Anderson Sales Co., Charlotte, was admitted as a member. Golf prizes were won by Sam Diggle, first low gross, Jack Degener, second low gross, Red Underwood, third low gross, George Thomas, first low net, Jock Rickman, second low net, Henry Kelly, third low net, and D. F. Wallace, consolation for highest gross score.

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Georgia Manufacturers Meet May 21 and 22

The Cotton Manufacturers Association of Georgia is scheduled to meet May 21 and 22 at the General Oglethorpe Hotel, Savannah, Ga.

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Tucapau to Be Known As Startex Mills

Tucapau (S.C.) Mills, recently sold to W. S. Montgomery and associates of Spartanburg, S. C., will be liquidated May 21, according to Merrill G. Hastings, secretary. The name, Tucapau, will go out of existence in manufacturing circles, although it is expected that the town will retain the name. In the future, the mills will be known as Startex Mills, a charter having been applied for under that name. Mr. Montgomery is listed as president and treasurer, and L. W. Perrin, local attorney, as secretary. There are 10,000 shares of stock of no par value.

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New Curtain Promotion

A group of leading lace curtain manufacturers have organized to conduct a promotion campaign among retail stores which will emphasize quality and style in lace curtains. The campaign is being conducted through the Home Window Decorating Guild, New York. N. G. Robertson, Jr., President, Scranton Lace Co., is chairman of the committee in charge.

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Prices and Activity

Key cotton prices for May and a month ago, contrasted with those of the last two years follow:

	May 1 1936	Apr. 1 1936	May 1 1935	May 1 1934
Spot Cotton, N. Y..	11.61	11.56	12.15	10.75
Ditto, high previous month...	11.88	11.72	12.25	12.30
Ditto, low previous month.....	11.55	11.20	11.20	10.90
10s hosiery cones...	23⅜	23¼	27½	26¼
10s/2 carded skeins.	23	23½	27½	26½
20s/2 carded peeler warps.....	25½	26½	30½	29½
60s/2 combed peeler warps.....	52	53½	55	57
60s/2 mercerized cones.....	51	68c	70	72½
37 in., 3-yd. drill....	8¼	8¼	9¼	9¼
38½-in. 64x60s.....	5 3/4	5¼	6¼	4¼
36-in. 4-yd. 56x60s..	6¼	7	7½	6¼
Denim, 2.20s.....	13	13	14½	15½

Statistics of particular interest to cotton manufacturers showing March operations and the raw material situation:

Spindle activity	108.1% capacity, or 7,263,926,919 spindle hours
Cotton consumed	548,913 bales
Cotton exported	404,741 bales
Cotton imported	15,662 bales

February operations for comparison:

Spindle activity	105.2% capacity, or 6,736,374,454 spindle hours
Cotton consumed	516,649 bales
Cotton exported	406,022 bales
Cotton imported	17,837 bales

Cloth and Yarn Markets

The gray goods market during the biggest part of last month was generally unsatisfactory, despite a spurt toward the end of the period. Volume of sales during the third week was much larger than for the previous several weeks, with emphasis on fancy goods and print cloths, over 50,000,000 yd. of the latter estimated to have been sold. The month closed weak.

Continual rumors of mills selling yarns below list prices tended to keep the market spotty during April, although business in general was in line with that of the previous month. One of the largest combed yarn groups in the industry reported excellent business for June delivery. This firm sold 30s single combed at 35c., refusing to make concessions as it had in the past. Orders taken during the Knitting Arts Exhibition were said to be smaller than last year.

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Industry Briefs

Resident buyers for wholesale dry goods houses and a number of their clients began an educational and goodwill tour of southern mills early last month, arrangements having been made under the auspices of the Association of Dry Goods Wholesalers of New York. Mills scheduled to be visited included Riverside & Dan River Cotton Mills Co., Inc., Cone Export & Commission Co. mills, P. H. Hanes Knitting Co., Pacific Mills, Arnall Mills, Arco Mills, Avondale Mills, and others.

Acceptance of the proposed Commercial Standard for Woven Elastic Fabrics for Use in Overalls has been announced by Division of Trade Standards, National Bureau of Standards. It will be known as CS58-36 and may be considered effective for new production on May 15.

Awarded Grand Prize—*Final decision of the judges in the ninth annual style show of the N. C. State College Textile School awarded the grand prize to Mildred Covington of Flora MacDonald College, Red Springs, N. C.. Miss Covington's home is in McColl, S. C. A wide variety of garments prepared from cloth designed and woven by State College textile students, was modeled by the girls at the style show in Pullen Hall, Apr. 23, in competition for prizes offered by North Carolina manufacturers and Raleigh merchants. The seventeenth annual students Textile Exposition was held in connection with the style show. All processes used in the textile industry, from raw cotton to finished goods, were shown during the exposition.*

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Cotton Mill News

West Point Mfg. Co., Lanett, Ala., plant, has had a vacuum lint and dust collector system installed on two 198-spindle automatic spoolers.

Swift Mfg. Co., Columbus, Ga., has closed bids for new three-story addition, 78x121 ft., for expansion in finishing division, as well as portion for machine shop. It will cost over $90,000, with equipment. Robert & Co., Atlanta, Ga., are architects and engineers.

Harmony Grove Mills, Commerce, Ga., has completed installation of one Entwistle high-speed warper and two Abbott high-speed winders.

Bibb Mfg. Co., Macon, Ga., is said to be planning a modernization program which will cost $1,000,000.

Pacolet Mfg. Co., New Holland, Ga., seriously damaged in the tornado which nearly wiped out Gainesville, Ga., last month, has let contract to Fiske-Carter Co. to repair the plant and village. Auproximately $500,000 are expected to be spent in this work.

Roswell (Ga.) Mills, Inc., has awarded a contract to Batson-Cook Co. to construct a new weave shed at No. 2 Mill. The building, of structural steel, brick and timber, is expected to be completed in six months.

West Point (Ga.) **Mfg. Co.,** is installing 65,000 Whitin long-draft spindles. Slasher equipment has been reconditioned.

Pearl River Corp., Picayune, Miss., capitalized at $300,000, has plans for a 180x275 ft. saw-tooth roof, cloth mill. Krouse & Brasfield, Meridian, Miss., are architects.

Cliffside (N. C.) **Mills** are having the Guillet overhauling system used for lining and leveling their machinery.

Cannon Mills Co., Concord, N. C., plans rebuilding and improvements to local Mill No. 2, recently damaged by tornado. Loss estimated close to $75,000.

Threads, Inc., Gastonia, N. C., have approved plans for new one-story addition, and will begin erection at once. New unit is reported to cost over $25,000.

Burlington Mills, Ossipi, N. C., plant, are constructing an addition.

Cotton Financial Notes

Lawton Mills Corp., Plainville, Conn., has filed dissolution papers and voted liquidation following the sale of its plant to General Cotton Supply Corp., Fall River, Mass. It is reported stockholders will soon receive a payment of $18 a share, and leaving $6 a share to be paid later.

American Printing Co., Fall River, Mass., has sold the residue of its cotton machinery to the Crescent Corp. This involves 756 automatic looms, preparatory and finishing machinery.

Otis Co., Ware, Mass., has been awarded damages totaling $192,397 for claims resulting from the diversion of the Ware River for reservoir purposes.

The Walcott-Campbell Cotton Spinning Mill, Gulfport, Miss., was sold under mortgage foreclosure for $110,000 to John Bright Lord, of New York.

Amoskeag Mfg. Co. stockholders adjourned their meeting at Manchester, N. H., May 6 to June 10 for consideration of reorganization plan.

Consolidated Textile Corp., New York, reorganizing under 77B submitted a plan on Apr. 30 and hearing on it was scheduled for May 13. The company will liquidate four of its mills under the plan.

United Waste Mfg., Co., Troy, N. Y., has sold its idle plant to Jacob and I. J. Weinstein, Inc.

American Cotton Mills, Inc., Bessemer City, N. C., and **American Combed Yarn Corp.,** Gastonia, N. C., Goldberg interests, will be reorganized. American Mills will be known in the future as **Algodon Mfg. Co.,** with an authorized capital stock of $500,000. American Combed Yarn Corp. and Gastonia Thread Yarn Mills, Inc., will be reorganized and known as **Gastonia Combed Yarn Corp.** The new corporation will purchase all the assets of the old, make a cash payment of $25,000 to the bondholders, and issue first preferred stock in the sum of $250,000 to be exchanged for a similar amount of bonds now outstanding.

Caswell Cotton Mills, Inc., property, including plant, and mill village, at Kinston, N. C., was purchased by local bondholders for $76.000 in a court sale April 27.

Moore Cotton Mills Co., Lenoir, N. C., lost 17 houses from its village last month as a result of a fire.

Mollohon plant of Kendall Mills Co., Newberry, S. C., closed for several weeks because of labor difficulties, will remain idle indefinitely. All overseers and second hands have been dismissed.

Pelzer (S. C.) **Mills Co.,** formerly owned by New England-Southern Co. will be formally transferred to new owners, J. P. Stockton & Co. in July, it is announced.

Carolina Webbing Co., Inc., is being formed by John K. Voehringer, Jr., and associates, who on April 29, applied for a of overall elastic webbing.

Guadalupe Valley Cotton Mills, Cuero, Tex., has reduced its authorized capital stock from $270,000 to $122,728.28.

TEXTILE WORLD'S

Wool Digest

FOR at least ten years the man in the street has been informed perennially that a synthetic substitute for wool has been discovered. From the earliest "artificial wool" to the most recent product made in Italy from casein, the record has been one warranted to confuse the ultimate consumer.

The casein product has been criticized by experts, particularly on the basis that it does not possess the springiness, tendency to curl, and ability to felt of natural wool—characteristics which are of great importance to the product of the sheep. Certainly, similarity in chemical structure—even if it exists—is not in itself sufficient.

Any man would be a fool to say that wool can never be synthesized. Scientific history is full of refutations of such babblings. Until the result *is* achieved, however, we believe restraint should be exercised in its proclamation.—*Editor.*

Wool Stock Off 23% In Year

Quarterly wool stock report as of March 28 issued on April 17, shows a total of apparel class wool in dealers and manufacturers hands of 103,642,000 lb., scoured basis, against 134,785,000 lb. one year ago, a decline of 23%. Manufacturers supplies at 62,486,000 were up 21%, while dealers supplies at 41,156,000 were off 50%. Tops available at 23,791,000 were up 35% and noils at 11,544,000 were up 22%.

Carpet wool stocks totalled 38,775,000 lb. scoured, on March 28, 1936 against 28,415,000 lb. a year previous, a gain of 35%. Dealers held only 3,135,000, a loss of 43%; while manufacturers held 35,640,000 a gain of 52%.

In the apparel wools, woolen wools accounted for about 43,300,000 lb. of which 30,700,000 were domestic and 12,600,000 foreign; worsted wools totalled 60,327,000 lb. of which 28,405,000 were domestic and 31,922,000 foreign.

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Britain Plans World-Wide Wool Promotion

A compliment was paid by Vernon Willey, Lord Barnby, to the effectiveness of the American wool promotion plan as operated under the guidance of Associated Wool Industries, New York, when he said that he regarded it as a model for the British Empire wool promotion which he hoped soon to get under way.

Lord Barnby is head of Francis Willey & Co., Bradford, England, leading wool dealers and topmakers. He visited various American cities in April on his return from Australia to England. While in New York he announced his hopes for setting up a world-wide wool promotion campaign backed by the wool growers of the British Empire and he credited the success of the American plan as an important influence in making his work easier. The British plan includes a statutory levy on the wool trade. The wool grower will receive benefits of research as well as increased markets, for the plan includes work on animal diseases, breeding, etc.

Already South Africa has passed legislation providing for levies up to 1 shilling per pound on wool exported, Lord Barnby said. He instanced the promotional work done by the rubber trade, by tea merchants by bread-makers of the United Kingdom, by meat packers (in changing taste of population from mutton to lamb), etc. The wool growing industry must take care of its interests in the changing picture of textile demand.

The operation of Lord Barnby's plan should prove helpful to the American industry, it was said, although it was not evident that he planned any direct promotional work in this country.

While in Salt Lake City, Lord Barnby stressed the opportunity which exists to improve American wools by the same careful methods of selection and breeding as used in Australia.

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To File Brief Against Japanese Imports

The National Association of Wool Manufacturers are about to file with the U.S. Tariff Commission a complaint against increasing quantities of Japanese woolen imports. Concern has been expressed not so much at the present quantity of Japanese imports, but at the probable future volume of such imports in line with developments in cotton textiles.

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Sentiment Turns Distinctly Better

There has been a real change of sentiment in the wool goods market during the last four weeks. Last month we found the market disregarding its elements of strength and slipping into a needlessly pessimistic state; now those elements have been more truly evaluated and the general market tone is confident and hopeful.

So far as tangibles are concerned, there was fair business in a variety of summer specialties including white and pastel coatings for women and tropical worsteds. There has been some spot demand for regular men's wear fabrics, but, due to mills' scant stocks, this business is going to jobbers. Fall women's wear lines are getting under way and are well received. Fleece coatings are popular. The major part of the initial business in fall women's wear will be done by the end of May and at the same time there is due a movement of reordering in fall men's wear since clothiers went on the road with their fall offerings in April.

Of course the major part of the fall men's wear business has been done at prices fixed last January on the basis of then-current prices on raw materials. There is still good reason for an advance in fabrics despite the set back in raw materials during March. It remains to be seen whether any further advance beyond that taken in February will be effected.

Reports from retail circles tell of a good pre-Easter business and a continuing flow of business since then which is distinctly better than that of a year ago. This good basic distribution is another element in putting optimism into the saddle. The market estimated that unfilled orders early in April totaled 42,000,000 linear yds., equivalent to about 13 week's production at the current rate.

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Wool Market Remains Apathetic

Although there were times when the number of inquiries increased and wool dealers hoped that a buying movement would start, the month of April saw very little wool moved. Prices were weak, although a slight amount of backbone was in evidence the latter part of the month. Some lots of twelve months Texas wool were sold for 83-85c, but most quotations were nominal due to the lack of trading. Foreign wools were inactive, but the strength of the market abroad kept prices firm on spot lots held in the Boston market. Some lots of apparel wools were withdrawn from bond and re-exported.

The top market was too featureless to give any authority to asking prices. Scattered lots were sold on the basis of $1.06 for 64s. Deliveries on old contracts were only fair.

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Tops Strengthen

Wool tops strengthened in April after a slump around the first of the month. The exchange's standard spot top was quoted at $1.03 on March 27; at $1.00½ on April 3; and at $1.04½ on April 9 and 17 and at $1.04 on Apr. 24 and May 1.

The rise in futures was about the same and there was fair demand for futures from manufacturers, dealers and outside interests. Wool and its products are gaining a current appraisal as fairly well stabilized commodities.

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Pearl Tip vs. Broad

The results of tests to determine the relative top-making qualities of fine-wool fleeces having pearl tips and those having broad tips have been announced by Prof. J. F. Wilson, of the University of California. The tips referred to are the groups of fibers which appear as more or less solid units on the surface

of the fleece—pearl tips being relatively small and round and broad tips being ½ sq.in. in size, hard, flat, and irregular in shape. The tests, which were conducted at Lowell Textile Institute, indicated that pearl tips give 7% less shrinkage, less noil, a ½-in. longer top, and a better-handling top. Sheep with pearl-tip fleeces have been found better adapted to adverse climatic conditions and less subject to blow-fly attack.

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Dress-Goods Standard Approved

Enough signed acceptances from testing houses, manufacturers, distributors, and users were received by the Division of Trade Standards, National Bureau of Standards, to make effective on April 15 the Commercial Standard CS59-36, "Woven Dress Fabrics—Testing and Reporting," which was the basis for many an active debate among textile circles last fall. This standard provides regular methods of testing and reporting woven dress fabrics.

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Prices and Statistics

Key wool prices of May 1 and a month ago, contrasted with the last two years:

	May 1 1936	Apr. 1 1936	May 1 1935	May 1 1934
Fine and fine med. territory	$0.81	$0.85	$0.60	$0.80
Ohio 3/8s	.37	.41	.25½	.36
Tops, fine 64-66s	1.05	1.12	.84	1.16
average 3/8s	.96	1.01	.69	1.04
high 1/4	.89	.94	.58	.94
Noils, fine	.68	.70	.49	.55
1/4 bld	.53	.55	.39½	.46½
2-40s 60s wstd yarn	1.55	1.60	1.28	1.62½
8020 serge	1.95	1.95	Not quoted	

Current statistics on wool consumption and mill activity follow, activity percentage based on single 40-hour shift, 5 days per week. Both months are four-week periods.

	February	March
Wool consumed, clean equiv.		
Apparel wool	24,448,000	20,368,000
Carpet wool	7,256,000	7,248,000
Machinery Activity		
Looms (50" wider)	112.9%	100.9%
Carpet looms	65.6%	62.8%
Combs	145.7%	109.5%
Worsted spindles	85.0%	73.9%
Woolen spindles	123.1%	109.7%

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Wool Trade Briefs

National Upholstery and Drapery Textile Association, New York, has issued a leaflet entitled "What do we get out of our association" over the signature of the governing board of eight headed by P. J. Torchiana of Collins & Aikman Corp., chairman, just re-elected president of that body. It is an interesting summation of the association's service in relations with legislation, the public, the industry's customers, labor, the industry's own units and other related units.

Richard Lennihan Co., Inc., headed by Richard Lennihan, former president of Hamilton Woolen Co. and recently with Nashua Mfg. Co., is opening offices at 51 Madison Ave. as piece goods selling agent. J. C. Donaldson and Donald Durie are vice-presidents and Herman Musar secretary.

M. T. Stevens & Sons, North Andover, Mass., has purchased the knitted overcoat department of the Lawrence Mfg. Co., Lowell. Leslie Runton will continue in charge of this department.

Wm. P. Goldman & Bro., clothiers, opened their fall and winter lines late in April with an average advance of $1 wholesale over previous list. In a number of overcoat numbers the retail price will remain unchanged. The "Qualapaca" hair mixture overcoat will still retail at $40 although the wholesale price is up to $25.50 from $24.50.

Joseph Drexel Holmes, who has been in the New York wool goods business for 60 years, recently celebrated his eightieth birthday. He is still more active than many men years his junior.

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Wool Mill News

R. H. Hurworth, Inc., Putnam, Conn., plush upholstery, has completed the removal of machinery and equipment to the Centreville Mill, East Warwick, R. I.

Peerless Woolen Mills, Rossville, Ga., have let general contract to Batson-Cook Co., West Point, Ga., for one-story, 140x400 ft., addition for expansion in weaving department; also for an extension to Mill No. 2, and for a one-story addition to another mill unit. Improvements will be carried out in present mill. Entire project will cost close to $400,000, with equipment. Robert & Co., Atlanta Ga., are architects and engineers.

River Woolen Mills, Inc., Worcester, Mass., plan early rebuilding of portion of plant at Cherry Valley, near Worcester, damaged by recent floods, including reconstruction of dye house, water power dam and other work. Entire project is reported to cost over $50,000.

Allen Industries, Inc., Detroit, Mich., have let general contract to Fullerton Construction Co., 11733 Russell St., Detroit, for new one-story mill addition. Cost close to $25,000, with equipment.

Yale (Mich.) **Woolen Mills** is erecting an addition to house spinning machinery. Early in 1935 an annex was completed which added 45,000 square feet of space for looms and storage.

Chatham Mfg. Co., Winston-Salem, N. C., has taken over the former property of the Inverness Mills, located on Walker Road. A part of the mill will for the present be used for storage.

Saybrooke Mfg. Co., Hope Valley, R. I., has acquired Royal Mill of B. B. & R. Knight Corp., West Warwick, R. I., and will remodel and improve.

Westerly (R. I.) **Fabrics, Inc.,** is a new company operating in the old Ninigret Mill, with 34 looms and 34 employees.

Staunton (Va.) **Woolen Mills,** which will employ 75 women operators, broke ground for new plant on April 21. It will be completed by July 1.

Washougal (Wash.) **Woolen Mills** have installed two sets 60x60 D. & F., 4-breaker cards equipped with latest D. & F. tape condensers and center draw feeds; also two 120-spindle D. & F. Model D spinning frames. This installation makes the plant an 8-set mill. It has been running three shifts for the last 18 months on flannels, twists, suitings, etc.

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Wool Financial Notes

Empire Woolen Mills, Long Beach, Calif., are being organized to take over and operate the local mill of the Long Beach Woolen Mills, Co., idle for some months.

Volney Felt Mills, Inc., 5302 West 66th St., Chicago, recently reported, has taken over all of the old Volney Mill at Fulton, N. Y., Lloyd A. Fry and R. P. Munger are the principals.

Saco River Woolen Mills, Inc., West Buxton, Me., was so badly damaged by the March floods that its starting up was regarded as unlikely at last report.

Winona (Minn.) **Yarn Mills, Inc.,** is being offered for sale as a going concern, according to C. F. Witt, treasurer. It is a 4-set mill with 2,200 spindles equipped to manufacture knitting and weaving yarns.

Botany Consolidated Mills, Passaic, N. J., has accepted the bondholder's reorganization plan which is a composite plan expected to bring together eight or nine different interests. Hearing was set for May 13.

Hinsdale (N. H.) **Woolen Mill** machinery was sold for $4,000 at a liquidation auction. Sale included 60 looms, 7 mules, etc., most of which was bought by Percy Musgrave to be installed in a Virginia woolen mill.

Riverside Mills, Inc., Lebanon, N. H., have been organized under Massachusetts laws, with capital of 1,000 shares of stock, no par value, and plan operation of a woolen mill in this vicinity. Sydney S. Bergson, 1874 Commonwealth Ave., Boston, Mass., is president.

Newton Woolen Mills, Homer, N. Y., were destroyed by fire April 2 with loss estimated at $40,000.

National Worsted Mills, Jamestown, N. Y., has acquired the plant of Ferncliff Mills adjoining its own plant in Falconer, N. Y. The Ferncliff unit, idle for some years, will receive new machinery and equipment.

Ballard Woolen Mills, Malone, N. Y., may be reopened following a resolution adopted by business men urging the loan of $75,000 from the Reconstruction Finance Corp.

Collins & Aikman Corp., New York, reports net profit for year ended Feb. 29, 1936 of $3,974,688 against $270,798 for previous year.

F. C. Huyck & Sons, Rensselaer, N. Y., has filed notice of an increase in capital stock from $500,010 to $1,833,370.

Hollinger Mills Co., Carlisle, Pa., rug manufacturing plant, was destroyed by fire on Apr. 24. Frank Hollinger, owner, said the loss would total more than $30,000.

Louis Kraemer & Co.'s Stoney Creek (Pa.) Mills will be run for another six months under Carl H. Boas as receiver according to court permission.

Alta Weaving Co. has been organized in Philadelphia, Pa., with headquarters at Josephine and Pear Sts., to operate a weaving mill. Albert R. Shroeder and James E. Walmsley are the principals.

Artloom Corp., Philadelphia, Pa., reports a net profit of $64,821 for 1935 against a net loss for 1934 of $238,129.

Cherry Brook Worsted Co. Woonsocket, R. I.—Hugo A. Jarrett and J. F. Reynolds were named co-receivers for this company in Superior Court at Providence.

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TEXTILE WORLD'S

Rayon & Silk Digest

RAYON merchandising continues to make strides. Best of all, its progress is steady, consistent—rather than a series of sporadic advances interspersed with periods of inaction, as it once was in this field.

Outstanding is the increasing push of rayon producers on the stores. This drive is quiet, but most effective. It includes not only the isolation of the rayon department, but a general insistence on retail acceptance which is producing results.

Merchandising of rayon products is being focussed more directly upon the consumer and in terms understandable to the average consumer. For a while, after rayon came out of the bargain basement and became a respectable member of the fiber family, there was a tendency on the part of rayon promoters to go too far in the other direction. In fact, they went high-hat. We are getting back to middle ground again—giving up some of the Park Avenue quality prestige emphasis and fashion-show atmosphere, and acquiring more of the Main Street appeal.

For all of which, those responsible for the merchandising policies of rayon producers deserve particular credit.—*Editor.*

Rayon Highlighted At Knit Goods Show

The man-made fiber was definitely in the foreground at the Knitting Arts Show in Philadelphia last month, and the displays of rayon and other synthetic yarn fabrics attracted an unusual amount of attention. The rayon booths were among the most artistic and interesting at the show and drew large crowds of manufacturers. A significant feature was that this year the rayon exhibits put less emphasis on telling rayon's technical history and more on pictorial displays of the adaptability of rayon yarn to knit products.

All manner of rayon knit goods, made in every conceivable combination of synthetic yarns was in evidence. As might be expected staple fiber and spun yarn were highlighted. The extent to which staple has established itself in outerwear was particularly striking, being shown in the numerous types of outerwear merchandise displayed.

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Federation Favors Federal Control

The National Federation of Textiles, Inc., was placed on record, April 20, through action of its board of directors, announced by Peter Van Horn, president, as favoring the National Textile Act. The directors were convinced that voluntary pacts are unworkable in the silk-rayon fabric industry and also because of the belief that the act will help to increase employment. The Federation held a luncheon gathering of 150 silk-rayon manufacturers April 23 at the Hotel Astor, New York, at which the body's attitude on the bill was explained in detail. In his address there Mr. Van Horn said he knew of "an avalanche of reasons not to seek government aid" but also knew of advantages in the Act. Other speakers were Sylvan Gottschall, attorney, and Gregory Hankin, also an attorney.

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Taffeta Boom Keeps Yarn Market Active

The sustained popularity of pigmented yarns for taffeta manufacture was one of the chief influences in keeping the rayon market active during the last month. The denier used in these lines moved steadily through April and indications at the end of the month were that April volume would be equal to March. The call for acetate yarn which had been slack for some weeks showed decided life in mid-April and by the end of that month the total had exceeded March. Price tone was unchanged —and this last may be taken as a good sign, as hitherto every April for the last three years has brought a price cut.

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Raw Silk Softens

After a month of quite spirited fluctuations, raw silk ended April with prices about 2 to 4c below those of end March. Demand from weavers for the 20/22s had picked up noticeably due to increased production of the triple-sheer georgettes and importers found difficulty in meeting spot orders. The hosiery manufacturers did not show the expected interest, due to the curtailed production reported in certain districts. Most hosiery firms are believed to be covered for the month of May and there was little indication therefore of any improved activity in 13/15s this month.

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Gerli Home—With New Drive Funds?

One of the chief items of interest in the silk market this month was the report from Japan that plans were being developed to raise a new fund of approximately $700,000 for extended silk promotional activities in this country. The report was coincident with the visit to Japan of Paolino Gerli, of E. Gerli & Co., who is president of the International Silk Guild and who returned home April 26. Mr. Gerli indicated on his return that the Silk Guild had made no request to the Japanese for money. He added, however, that he had made some recommendations to the Raw Silk Association of Japan, the nature of which he could not disclose. He said definite word as to whether the new fund would be raised might be expected from Japan in several weeks.

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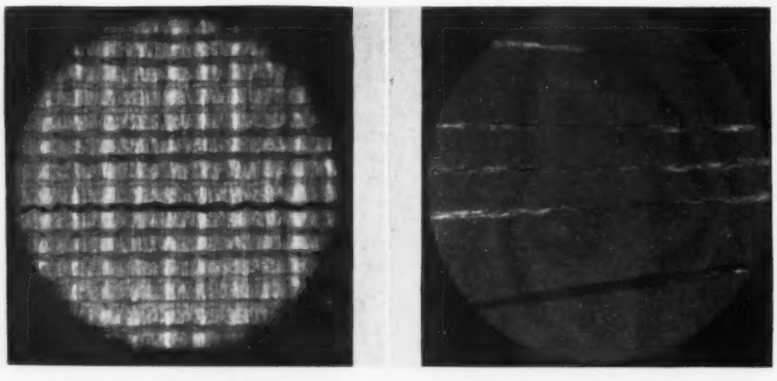
F.T.C. Cites 5 Bodies In Fashion War

The long-waged controversy between the Fashion Originators Guild of America and the retail trade over the Guild's method of dealing with stores which refuse to adopt its design protection policies, reached a climax April 22 when the Federal Trade Commission issued a complaint citing five associations. These associations, in addition to the Guild, are the Michigan Avenue



Microscope Exonerates Weaver—*Two photomicrographs on page 107 of the Feb. 14 issue disclosed that a piece of dirty filling was the fault of the weaving department. The two accompanying pictures of a similar defect in another fabric tell a different story.*

To the naked eye the spiral effect shown in the first photomicrograph was not evident, and the condition might have been attributed to weaving, quilling, or throwing, or to carelessness in the handling of bobbins, quills, or raw yarn. When this 4-thread crêpe yarn was removed from the grege fabric and untwisted, as shown in the second picture, it was found that one thread (somewhat dilated by the camera) was dirty and oil-soaked and had stained the other three threads to some degree.

Therefore, by means of these photomicrographs Hatch & Reutlinger, New York, were able to prove that the defect was caused previous to the twisting operation. Probably, therefore, it occurred in skein winding.

Guild, Chicago, the Minneapolis Fashion Guild, Ladies' Ready-to-wear Guild of Baltimore, National Federation of Textiles, Inc.; the complaint cites also the respective officers, directors and members of each organization. The complaint charges combination and conspiracy to suppress competition and to create a monopoly in the ladies' garment and dress goods trade. The National Federation was cited as representing textile manufacturers who are alleged to have been party to the unlawful acts. A few weeks prior to the filing of the complaint Schwarzenbach Huber Co. and the Stehli Silks Corp. resigned from the Fashion Guild, having disagreed with the organization's policies.

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Silk Men Dine Lewine

Many leading silk men including importers, traders and manufacturers, attended the first annual dinner of the Commodity Exchange, Inc., New York and paid tribute to Jerome Lewine, first president of the Exchange in whose honor the event was held May 5 at the Waldorf-Astoria Hotel, New York. Speakers warmly praised Mr. Lewine for his distinguished service, both as president of the old Silk Exchange, and also as first president of the Commodity of which the silk exchange is now a part.

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Current Rayon Data

Key rayon prices and statistics follow:

Prices:	May 1 1936	Apr. 1 1936	May 1 1935	May 1 1934
Viscose process				
75 denier (18-30 fils.)	$0.90	$0.90	$0.85	$1.00
100 denier (40 fils.)..	.79	.79	.74	.77½
150 denier (40 fils.)..	.57	.57	.55	.58
Acetate process				
150 denier.....	.60	.60	.60	.78
Cupra. process				
150 denier (112 fils.).	.65	.65	.60	.90

Statistics†	Indices of Deliveries* 1936	1935
April.....	433	274
March.....	422	295
Feb.....	516	441

*Rayon Organon.
†Exclusive of Acetate. Daily average 1923-25 = 100.

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Current Silk Data

Key silk prices and statistics follow:

Prices	May 1 1936	Apr. 1 1936	May 1 1935	May 1 1934
Crack XX 13/15 white 78%.....	$1.71½	$1.88	$1.40	$1.25
Tram, 5thd Japan 85%.....	2.33	2.50	2.27½	2.12½
Tram Crack XX 78%.....	2.25	2.37	2.00	1.92½
60s-2, spun silk.....	2.85	2.90	2.75	2.95

Statistics	Imports	Approx. Deliveries	Stocks at Warehouses
Feb., 1936.....	40,222	32,053	64,680
Mar., 1936.....	25,009	36,000	53,689
Apr., 1936.....	26,973	34,564	53,689

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Silk and Rayon Briefs

Blumenthal in Seventh Ave. Area—The parade of fabric firms to the Seventh Ave. area, New York is going to have a distinguished new member. It is announced that Sidney Blumenthal & Co., will occupy the first loft of about 10,000 sq.ft. at 1385 Broadway, at 38th St., for velvet and cloaking sales. Executive offices will continue at One Park Ave.

Budd Buys Furness' Foreign Patents—Confirmation of the purchase by the Budd International Corp. of all foreign patents owned by Wm. H. Furness for his cuprammonium process of making rayon, was announced April 9 by Paul Zens, representing the Budd interests and Mr. Furness. Mr. Furness said this act severed the last contact between the American Rayon Corp. of which he is president and the New Process Rayon Corp.

Brocklehurst-Whiston Branch Here—L. C. Whittaker has arrived in New York to arrange for opening of an American sales office there for the Brocklehurst-Whiston Amalgamated of London, foremost manufacturers of silk fabrics in Great Britain.

Extend Staple Fiber Output—The Viscose Co. will shortly build an addition to its plant at Nitro, W. Va., this addition to be devoted to staple fiber output. The new plan will not affect the company's production of staple at Parkersburg, W. Va., where output has been increased.

National Rayon Weavers Meet—At a meeting of the board of directors of the National Rayon Weavers Association held April 23, plans went forward for completion of incorporation plans. N. F. Ayer, of Cabot Mfg. Co. succeeded L. B. Frieze of Duplan Silk Co., as member of the board of directors, all other members reelected.

Greyco To Drop Selling—Announcement that Greyco Sales Corp., New York, widely known sales agency for a group of large silk-rayon mills would close up its selling job June 1, was made April 25 by Thos. B. Hill, president of the firm. It was not decided whether the corporate identity would be preserved. Mr. Hill has not yet announced his future plans.

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Rayon & Silk Mill News

DuPont Rayon Co., New York, N. Y., is completing plans for new multi-story addition to branch mill at Ampthill, near Richmond, Va., and will begin work on superstructure at early date. Cost reported over $350,000.

Stone Silk Mills, Inc., Ogdensburg, N. Y., which recently moved from Paterson, N. J., has installed 156 looms besides making repairs to roof.

Burlington (N. C.) **Mills Co.,** has awarded general contract to Charles W. Angle, Inc., Greensboro, N. C., for new one-story addition to its local mill No. 3, to be equipped to give employment to about 100 additional operatives. Cost close to $50,000, with equipment.

Williamsport (Pa.) **Narrow Fabric Co.** has approved plans for new one-story addition to mill, and will begin superstructure at once. Cost reported close to $25,000, with equipment.

Dunean Mills, Greenville, S. C., during the last few months, have replaced approximately 400 looms with Crompton & Knowles Supersilk 50 in. machines.

Tennessee-Eastman Corp., Kingsport, Tenn., is enlarging its plant, according to statement to stockholders of the parent company.

Minjay Mills Corp., through J. S. Gerson, vice-president, announced April 15, that plans were being drawn by Roswell E. Smith, Morristown, Tenn., for construction of a 52x100 ft. addition to Aronsohn & Hirschfeld silk mill recently acquired at Morristown. He stated that construction would begin early in May. L. Lasnick of Paterson, N. J., is also interested. New York office is at 411 Fifth Ave.

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Rayon & Silk Financial

Starr Silk Co., Brewton, Ala., recently organized to take over and succeed to mill and business of the Brewton Silk Mills, Inc., will soon resume production at the plant, idle for several months past. New company is headed by Vaughn A. Starr, formerly superintendent at the mill.

Edward Bloom Silk Co. plans to sell its tenement property surrounding the factory at Putnam, Conn.

Cheney Brothers, South Manchester, Conn., by order of Special Master A. S. Albrecht must pay $197,000 to the Madison-Belmont Corp., New York, for rental of New York offices. Cheney Brothers under Section 77B of Federal bankruptcy act rejected a lease of the New York property, during reorganization, and the Madison-Belmont Corp. sued for damages amounting to the original expiration of the lease.

Celanese Corp. of America is holding stockholders' meeting May 13 to act on proposed increase of no-par common from 1,000,000 shares to 1,200,000 and on other matters.

Medal Silk Co., Paterson, N. J., were sold on April 17 in liquidation proceedings.

Arthur Hill, of Chicago, has opened an office at Burlington, N. C., for purpose of selling the plant and other properties of the former Carolina Rayon Corp. Hercules Life Insurance Co., a subsidiary of Sears, Roebuck & Co., has begun the liquidation of the corporation. Hercules obtained ownership of the property when Sears, Roebuck took over the assets of the National Life Insurance Co. through a receivership sale in 1935.

North American Rayon Corp., New York, reports unaudited net earnings for 12 weeks ended Mar. 22 of $325,011. The firm will issue such reports every 12 weeks hereafter.

Premier Silk Mills, Inc., High Point, N. C., has been granted a charter to buy and sell all kinds of textile fabrics. Capital stock is $250,000.

Industrial Rayon Corp., Cleveland, Ohio, reports net profit of $198,616 for first quarter of 1936 against $296,301 for similar period in 1935.

National Fabrics Corp. has been chartered in Allentown, Pa., with a capital of $2,010,000, by Charles L. Gerli, president, and associates, to manufacture and deal in textiles.

Bedford (Va.) **Weaving Corp.** at Bedford will be taken over by Belding Heminway Corticelli Co., of New York, silk manufacturers.

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TEXTILE WORLD'S

Knit Goods Digest

KNITTING WEEK in Philadelphia gave technicians in the industry a chance to get up-to-date on the many recent advances in the art. See story on the Knitting Arts Exhibition, commencing on page 99.

But the week offered substantial fare to policy executives too. The conventions of both the National Association of Hosiery Manufacturers and the Underwear Institute emphasized the profit theme. In fact, to solve the problem of profitless prosperity, the hosiery group is planning an industry-wide study of the fundamental factors which, seemingly, prevent profitable operation.

Similarly, both meetings high-lighted the importance of continued observance of code labor standards. The underwear group pushed for general acceptance of its voluntary code, while the hosiery association is hoping that the voluntary agreement being attempted by the seamless branch will serve as an example for the industry as a whole.

Altogether, the week was a most constructive one—and its influences should be felt in the future.—*Editor.*

Hosiery Shipments Gain in March

The monthly statistical bulletin of the National Association of Hosiery Manufacturers, reports that during March, 1936, a total of 10,420,286 doz. pr. of hosiery, all types, was shipped into consumption channels, thus rounding out a generally satisfactory first quarter as far as demand is concerned. This shipment figure represented a gain of 652,050 doz. pr., or 6.7%, over shipments in March, 1935, and a more than seasonal increase of 1,758,218 doz. pr., or 20.3%, over shipments for the preceding month. For the first quarter of 1936 total shipments of all types of hosiery were 1.8% greater than shipments during the first quarter of 1935.

Shipments of women's full-fashioned hosiery in March, 1936, amounted to 3,370,505 doz. pr., a gain of 10% over March, 1935. Total shipments of seamless types of hosiery in March, 1936, amounting to 7,036,014 doz. pr., were 5.2% greater than shipments of such types in March, 1935. The gain over last year was attributable to a greater demand for women's seamless hosiery and anklets. Total production of all types of hosiery in March, 1936, at 9,832,029 doz. pr. was 588,257 doz. pr. below shipments, resulting in a decrease in total stocks of all types of hosiery by that amount.

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Union Votes War Chest

Plans of the American Federation of Hosiery Workers for a unionization drive in the South took on a definite aspect April 23, when the national convention of the Federation meeting in Philadelphia voted an assessment for such a campaign. The convention authorized the national executive board to collect 3% of annual wages of all union members beginning within 60 days to raise an organization fund for unionizing full-fashioned and seamless mills in the South and other sections.

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South Goes Modern

Further evidence of the growing importance of the South in the hosiery industry may be found in the increased emphasis hosiery manufacturers there are placing on equipment modernization. Last month attention focussed on the $500,000 modernization program of one foremost hosiery firm, yet the trend is by no means as limited as this might imply. Numerous hosiery firms in the South of late have utilized their dull periods to have machinery reconditioned, and generally the policy has been to spend increased earnings in improving equipment. The trend is such that, if continued, it will greatly strengthen the South's position in hosiery.

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Cheap Knee-Lengths May Glut Market

Excessive production of the low-priced lines of knee-length hosiery is causing worry among those who had looked for a profitable May-June period on these lines. Market reports this month pointed to weakening of prices of knee-lengths which was ascribed largely to the heavy stocks on hand in many mills. Meanwhile, the general market tone was not too satisfacfactory. Backward weather had slowed up buying, resulting in price reductions by leading companies; the chief price cuts were from 10 to 20c per doz. and were in the medium-price lines mainly. At the end of April, however, the market appeared on the way toward stable prices. Some divisions of the seamless hosiery field held strong, and cheerful ones were spreading reports of a possible price advance.

Capacity Hosiery Output

Hosiery mill activity during April averaged pretty close to capacity, according to figures made public by the American Federation of Hosiery Workers. The data covered union and non-union mills, it showed that the chief curtailment was in North Carolina, with moderate curtailment in New York, New Jersey, South Jersey; however, capacity operation dominated in such leading hosiery areas as rural Pennsylvania, Tennessee, Middle-West and to a lesser degree Reading, Pa.

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Curtail Underwear Data

Elimination from the Department of Commerce monthly statistics on underwear activity, of figures for the same month a year previous, excited considerable comment in the underwear industry this month. The point made was that this impaired the value of the data as comparisons could not be made with the year before. The Federal figures for January, 1936, cited the previous month, December, 1935, as a comparison basis but did not give the total for January, 1935, as has been customary. It is suggested that shortage of funds may have compelled the Bureau of the Census to curtail its activity, necessitating limitation of statistical work. At present the only complete statistics available to the industry is that compiled by the Underwear Institute; this service is free to Institute members and is available to non-members on a commercial basis.

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Shorts Popular At Lower Prices

Continued growing interest in the supporter shorts was a chief feature of the rather quiet underwear market this month. Buyers were placing orders actively for a variety of shorts styles; the call centered on cotton garments but there was also a fair demand for rayons and mixtures. Market inquiry indicated that the most popular lines were those retailing at 35, 39 and 50c, thus showing a decline from last season when shorts retailed at 50c. and upwards. Fall underwear commitments are slow, which is attributed to the backward spring weather.

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Plan Outerwear Merger

Plans for a merger of the Knitted Outerwear Selling Agents Association with the National Knitted Outerwear Association, are in process of development, it was announced April 17. The selling agents unit as its name indicates is composed of distributors only and its interests have become so closely identified with those of the manufacturers' association that it was felt consolidation would be to mutual advantage. The selling agents, it is understood will have a special division within the outerwear association. Among the chief activities of the selling agents are: standardization of selling terms and the establishment and publicizing of uniform opening dates.

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Gentlemen Prefer Style in Swimsuits

Believe it or not, men are becoming style-conscious in their knitwear! Leading sales executives of swimsuit manufacturing firms this month analyzing the 1936

volume trend state as the chief market feature that men's standardized type suits are poor sellers while the highly styled numbers go very fast. Masculine style interest centers on low-waisted trunks, and one $2.95 low-waisted trunk number is among the market's best sellers. The Herring-bone, a half-hitch type and the Streamline, a moderately high-waist line are other popular numbers. One merchandise man predicted that next season and thereafter style will be a major selling element in men's swimsuits. Among the new style notes for men's swimsuits are hookless fastener pockets, novelty stitch construction, wide wale rib and elastic supporters.

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Industry Briefs

Ringless Hearing June 8—Hearing of the suit instituted by several Canadian full-fashioned hosiery manufacturers to nullify the ringless patent claims of Charles Kaufman, of New York, will be held June 8, in the Exchequer Court, Montreal, before Justice McLean.

Golf tournament of the Chicago Yarn Men's Circle will be held at the Bob-o-Link Country Club, Highland Park, Ill., Wednesday, June 17. Officers of the Circle for 1936 are George T. Hutchinson, president; Fred W. Frank, secretary; William Yates, treasurer.

The National Association of Hosiery Manufacturers is recommending new methods of measuring the size of foot of both full-fashioned and seamless hosiery to be included in Commercial Standard for Hosiery Lengths, CS 46-33.

Knitting Mill News

Alabama Hosiery Mills, Inc., Decatur, Ala., is planning an enlargement 105x210 ft., which will double available floor space.

Athens (Ga.) **Hosiery Co.,** referred to last month as building a $200,000 plant, have employed Lockwood Greene Engineers, Inc., New York, N. Y., as architects and engineers. The company is a branch of the Rodgers Hosiery Co., Inc., Germantown, Pa.

Owen-Osborne Hosiery Mills, Gainesville, Ga., has awarded contract to the A. K. Adams Co., Atlanta, for making repairs to their plant which was damaged considerably by the tornado.

Fulton Hosiery Mills, 529 North Fulton St., Indianapolis, Ind., have taken out a permit for construction of new one-story mill addition.

Ess-Tee Knitting Mills has moved from Brooklyn, N. Y., to Lowell, Mass., where it occupies larger quarters than formerly.

Leiscester Knitting Mills, Rochdale, Mass., is installing additional machinery.

Security Sportswear Co., Holland, Mich., recently organized, has taken over plant formerly occupied by Poole Mfg. Co., and will equip for knitting mill to give employment to above 75 operatives. Louis J. Horwich and L. H. Friedlen are heads.

Clyde-Bank Knitting, Inc., Fort Plain, N. Y., recently organied by William R. Ronald, Wells, N. Y., and associates, has purchased former local mill of Fort Plain Knitting Co., and will remodel and equip for new hosiery mill.

Rathgeb Knitting Mills, Highland, N. Y., have let general contract to the Schoonmaker Construction Corp., 307 Lucas Ave., Kingston, N. Y., for new one- and two-story addition, 50x100 ft., to cost close to $45,000, with equipment.

Hudson Silk Hosiery Co., Oakhurst, near Charlotte, N. C., is said to have the first windowless plant in the South. Among the features are elimination of glare from windows, elimination of heat losses through windows, use of carefully calculated artificial light, and efficient use of air conditioning.

Hoover Hosiery Co., Concord, N. C., is getting bids on plans which will double the capacity of the plant. Plans, specifications, surveys and the complete job were engineered by George C. Bell, mill engineer and architect, Charlotte, N. C.

Blackstone Hosiery Mill, Valdese, N. C., is completing a new addition, and 12 knitting machines are being installed.

Pauline Knitting Mills, Valdese, N. C., is installing 20 new machines to manufacture fancy half hose.

Pilot Full-Fashioned Mills, Inc., Valdese, N. C., has completed a new addition, and is now operating 80 machines. Six machines will be placed in the addition, leaving space for twelve more.

Clearfield Mills, Inc., Williamsport, Pa., has installed additional machinery and equipment and will increase its working force of 190 by 10%, according to Clyde Sheets, general manager.

Morristown Knitting Mills, Knoxville, Tenn., is remodeling a portion of its mill.

Kenmore Hosiery Co., Fredericksburg, Va., recently organized by John H. Bauer, and associates, has let general contract to E. G. Heflin, Fredericksburg, for new local mill on site secured through municipality, to be one-story, 100x132 ft. Cost close to $40,000 with equipment.

Knitting Financial

Ess Tee Knitting Mills, Inc., Lowell, Mass., have been formed with capital of $100,000, to operate a local mill, with production scheduled at early date. New company is affiliated with interests operating a company of similar name at 218 Bedford Ave., Brooklyn, N. Y., including Nathan Thorpe and Jacob Spiro, president and treasurer, respectively of new company.

Amsterdam (N. Y.) Sport Wear, Inc., has been organized with $150,000 capital for manufacture of hosiery, underwear and knit goods.

Rufus D. Wilson, Inc., Burlington, N. C., has been incorporated with capital of $150,000, to operate a local hosiery mill. Work on new unit will proceed at once, estimated to cost close to $60,000, with machinery. Rufus D. Wilson and W. S. Coulter, both of Burlington, head the new company.

Ellis Silk Hosiery Co., Philadelphia, Pa.—Sidney E. Smith has been appointed receiver in equity for this company, in bond of $10,000.

Shapeleigh Hosiery Mills, Philadelphia, formerly operated by W. H. Thornton has been acquired by Irving Birnbaum, formerly of Stillwell, Va. Mill will be renamed **Anglo Tex Hosiery Mill** and will sell through jobbers.

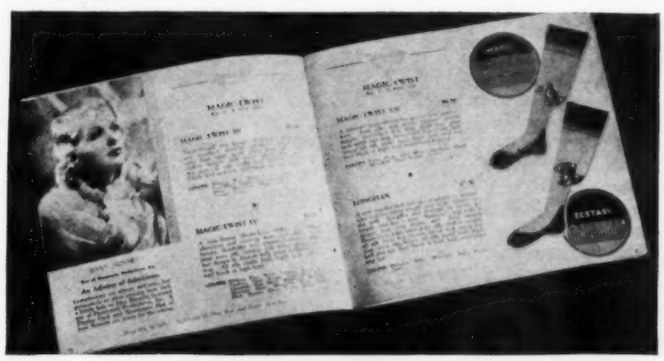
Tru-Tex Hosiery Mills, Inc., Wernersville, Pa., have not opened a mill at Paducah, Ky., as stated in these columns last month.

Lorraine Hosiery Mills, Sweetwater, Tenn., has been chartered recently, and is capitalized at $50,000. R. M. Moore, of Cleveland, will be manager. Directors, from whom officers will be elected, include W. E. Michael, W. B. Plemons, M. H. Thompson, George McCrary, D. L. McKinney and L. A. Walker.

American Knitting Mills, Menasha, Wis., have been incorporated to take over and succeed to company of same name, operating a local mill. Incorporators of new company include William Kraus, Howard W. Nussbicker and C. C. Sokolowski, all identified with former concern.

Oneida Knitting Mills, Inc., De Pere, Wis., have merged with the **American Knitting Mills,** Menasha, Wis., according to Roy C. French, president of the Oneida Company. The Menasha corporation will move its equipment to De Pere, Wis., and output will consist chiefly of sweaters, caps and scarfs. Howard Nussbicker, one of the owners of the American Knitting Mills, becomes general manager of the merged firm; Clem Sokolowski, superintendent of production, and William Kraus, head knitter. Officers of the company will be Roy C. French, president; George P. Ford, vice-president; Mr. Nussbicker, secretary; and Mr. Sokolowski, treasurer.

Bassett (Va.) **Mills** have been taken over by C. L. Ashley and P. C. Furbeck, the latter of the executive staff of Union Mills, St. Johnsville, N. Y.



Effective use of film stars' photographs can lift a catalogue from mediocrity to chic individuality, as shown in this sales piece issued by Cooper Wells & Co., St. Joseph, Mo. In addition to Joan Bennett, various other film favorites are shown.

TEXTILE WORLD'S

Processing Digest

THE finish is rapidly becoming the determining factor in the suitability and salability of a fabric for a specific purpose. In certain of the new finishes, the textile industry sees its hope for real profits. If the full benefits are to be realized, however, merchandising methods must keep pace with technical progress.

Some of the new finishes sell themselves, once the consumer is aware of their availability and advantages. But how is he or she to be thus informed? Outside of the industry itself, little is known of these recent developments. Individual finishers, generally speaking, are not geared up to undertake a national consumer campaign.

The answer seems to rest with the various trade associations whose members are interested in textile finishing. The first step would be a two-way educational program directed to the consumer and to the retailer—utilizing newspaper, magazine and radio advertising for approach to the former, and trade-paper and direct-mail approaches to the latter.

Once the consuming public knows what these new "proofs" mean in its apparel budget, the money invested in this campaign would pay big dividends.—*Editor.*

Research on Drying Urged at U. S. Institute Conference

That research on the drying of textiles is called for and that the United States Institute for Textile Research should undertake such an investigation was the unanimous expression of opinion of all who attended the conference held under the auspices of that organization, May 6, in New York. It was generally agreed that the initial work should be to determine those conditions of temperature, time, and pressure at which drying of the various fibers can be carried out most efficiently and with the minimum amount of damage to the textile. The consensus was that, with that fundamental knowledge made available, engineers would have little or no difficulty in supplying equipment of suitable design to meet the requirements of the several branches of the industry. Several of those present indicated their willingness to give financial support to any research program on drying problems which is set up by the U. S. Institute.

The morning session was devoted to the presentation of papers by P. B. Wendler; Joseph Bancroft & Sons Co.; E. N. Angus, Eavanson & Levering Co.; Dr. F. Bonnet, Viscose Co.; Erb N. Dilton, Gotham Silk Hosiery Co.; James T. Hunter, James Hunter Machine Co.; Lucian Buck, Proctor & Schwartz, Inc.; and Bliss Jones, Philadelphia Drying Machinery Co. This was followed by an open discussion at the afternoon session. Dr. W. E. Emley, chairman of the Institute's research council, presided. A detailed report of the conference will appear in our June issue.

Propose Test Method for Fastness to Laundering

Textile test methods are now being considered by subcommittee B4 of Committee D 13 of the American Society for Testing Materials, and it is expected that they will be offered for approval as tentative methods at the annual meeting of the organization, to be held in June. The tests under consideration are as follows: (1) fastness of dyed or printed cotton fabrics to laundering or domestic washing; (2) fastness of dyed or printed silk or rayon fabrics to laundering or domestic washing; (3) determination of small amounts of copper and manganese in textiles.

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Textile Fabrics Association Holds Annual Meeting

An emphatically couched demand by Henry G. F. Lauten that the government refund floor stock and export taxes was a highlight of the annual meeting of the Textile Fabrics Association, held April 21, at the Hotel New Yorker, New York. Mr. Lauten said that both morally and legally the government was obligated to make these refunds. He analyzed the two basic claims—floor stock taxes, and refund of processing taxes on exported items—and said that both claims should be satisfied as they were part of the original law.

The annual report by W. P. Fickett, president of the Textile Fabrics Association, emphasized the importance of acting for revision of the Worth street rules if such should prove necessary. He also announced that flood losses to members of the association during the spring inundations totalled about $75,000; some of the claims have already been paid under the association's insurance policy, and it is hoped that the rest will be cleared up by the end of the month. A strong plea for legislative restraints on the influx of Japanese textiles was made by Samuel Lamport in an address at the annual dinner of the association.

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Developing Tests for Crease-Resistance Of Fabrics

Active work is now being carried out on the development of a standard method for testing the crease resistance of fabrics by the American Association of Textile Chemists & Colorists and by the National Bureau of Standards. Kenneth H. Barnard, of Pacific Mills, is chairman of the A.A.T.C.C. subcommittee which is engaged in this problem. At the Bureau of Standards work is in progress on a new instrument which is expected to be suitable for plant-control and routine testing. Dr. H. F. Schiefer of the Bureau is also a member of Mr. Barnard's committee, which is completed by Dr. D. H. Powers of Rohm & Haas Co.

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Softening Agent

Brilliant Avirol L-200 Paste, a new softening agent of the fatty alcohol sulphate type, has been announced recently by E. I. du Pont de Nemours & Co., Wilmington, Del. This compound is designed to give surface smoothness, in addition to the full, pliable finish characteristic of the Avirol products. It is said to be free from rancidity or discoloration during calendering or during the storage of the finished fabrics. Brilliant Avirol L-200 Paste is recommended particularly for finishes without starch in which a smooth silky finish is desired, and also for starch finishes requiring a very pliable smooth finish.

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Textile Chemists in New Rôle

An interesting sidelight on the recent flood was the service performed by chemists at Lowell Textile Institute, where 481 flood refugees were registered and over 8,000 meals were served. Under direction of Prof. Elmer E. Fickett, 200 gal. of water a day was distilled for drinking purposes, and all milk used by children quartered at the Institute was pasteurized under the supervision of Dr. Harold C. Chapin.

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New Dyes

E. I. Du Pont de Nemours & Co., Inc., announces the following new products: Diagen Orange MG (patented), a new stabilized azoic color for use in printing cotton; Acele Scarlet B, an acetate color, yielding yellowish red shades on both bright and delustered acetate yarn and piecegoods: Celanthrene Navy Blue BP

Conc., an acetate dye giving full shades of navy of a reddish tone; Sulfanthrene Blue 2BDC Extra Paste, Sulfanthrene Pink FFC Paste, and Ponsol Jade Green Supra C Paste, three vat colors for printing on delustered rayon; Pontamine Fast Black LCW, a direct dye recommended exclusively for dyeing cotton materials containing acetate fibers that are to be left clear; Diagen Red MG Concentrated Solution, a stabilized azoic printing color. In addition, several vat colors manufactured in grain form have been placed on the market; these include Ponsols Golden Orange GS Double, Golden Orange RRTS Double, Brown AGS Double, Brown ARS Double, Khaki 2GS Double, Red G2BS Double, Violet BNXS Double, Blue BFS Double, Jade Green S Double, Olive ARS Double, Direct Black 3GS, and Sulfanthrenes Pink FBS Double and Pink FFS Double.

General Dyestuff Corp. announces the following new products: Celliton Fast Yellow 5R, a new acetate color yielding golden yellow shades which are redder than the dyeings from Celliton Fast Yellow RR; Silk Fast Grey BB, a new homogeneous dye of very good fastness to water, good fastness to washing and hot pressing, and fairly good fastness to perspiration; Rapidogen Red IGG, a new dye similar in its properties to Rapidogen Red ITR, but yielding a more yellowish bright red shade; Indanthren Turquoise Blue GK Paste, a new homogeneous vat color for cotton and rayon; Algosol Brown IBR a new Algosol color recommended for dyeing or for direct printing, and for the production of fast brown resists and beige resists under Variamine Blue; Supramine Blue RA, an acid dye producing bright shades of a reddish navy blue of good general fastness; and Diazo Brilliant Orange GA Extra, a developed color producing bright shades of a yellowish orange when diazotized and developed with Developer A.

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Industry Briefs

Aqua Sec Licensee—Donald Martin, president of the Aqua Sec Corp., New York, announced Jan. 15, that the Eagle & Phenix Mills, Columbus, Ga., had been named exclusive licensee in the cotton industry on the product of their mills for the Aqua Sec water-repellent process. Haywood Mackay and Valentine Inc., are sole selling agents for Eagle & Phenix Mills.

Fibra-Seal—Development of a new water-repellent process was announced recently by Progressive Silk Finishing Co., Hoboken, N. J. Fibra-Seal, as the process is known, is said to be applicable to cotton, rayon, acetate, and silk, giving a water-, spot-, and perspiration-repellent finish.

Cady at Atlanta—Wm. A. Cady, president of the American Association of Textile Chemists and Colorists, attended the spring meeting of the southeastern section at Auburn, Ala., April 25, and the event was in the form of a reception for Mr. Cady. The section had dinner at the Thomas Hotel, Auburn.

Vat Colors—Ormand W. Clark, of Umans Bros., discussed problems in the dyeing of cotton and linen fabrics with vat colors, at the monthly meeting of the New York section, A.A.T.C.C. held April 24, at Rochelle Park, N. J. Dr. Joseph F. X. Harold, consulting chemist, was another speaker; he presented a digest of patents recently issued on the crease-proofing of fabrics.

Talks at Clemson—Textile chemistry, dyeing and printing, and mechanical and personnel problems were discussed by Ben Verity, of Carbic Color & Chemical Co., in three talks, delivered April 6, to the students of Clemson Textile School.

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Mildew Preventives

Two new mildew preventives have been announced recently by E. I. du Pont de Nemours & Co., Inc., Wilmington, Del. The first, Shirlan A., is recommended for use in conjunction with Aridex WP in the treatment of goods to give them mildewproof and water resistant properties, these two effects being said to be unusually resistant to removal by weathering, moderate washing, and drycleaning. Shirlan Extra, the second product, is recommended chiefly for use in mildew-proofing heavy cotton fabrics which are subjected to weathering, but is also said to be suited for application to wool yarns and fabrics; it is not recommended for use with Aridex WP.

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Finishing Plant News

Hand Printers, Inc., Baltimore, Md., recently organized, have leased one of the buildings at former plant of Poole Engineering & Machine Co., Union Ave., and Buena Vista St., comprising Unit No. 2, Woodberry district, and will remodel and equip for a new textile print mill.

Reliable Silk Straw Dyeing Co., New York, has leased additional 8,000 sq.ft. in adjoining building at 21 East 4th St. and will install additional equipment for dyeing and drying rayon and cotton skeins and felt hats. Alexander Blechman is the owner.

St. Pauls (N. C.) **Cotton Mills** have recently constructed a new dyehouse. J. C. Lindsay is dyeing division superintendent.

Smitherman Cotton Mill, Troy, N. C., is adding a dyeroom to its plant.

Harris Finishing Co., Woonsocket, R. I., has plans for new local dyeing and finishing mill for rayon fabrics. New company will take over the rayon equipment of the Slater Co., Webster, Mass., with which its officials were previously identified. William E. Coakley is president, and Robert M. Murray, vice-president.

Dixie Mercerizing Co., Chattanooga, Tenn., has closed bids on general contract for new one-story mill addition, and will begin superstructure soon. Cost reported over $40,000, with equipment. Robert & Co., Bona Allen Building, Atlanta, Ga., are architects and engineers.

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Finishing Financial

California Piece Dye Works, Inc., Los Angeles, Calif., has been incorporated with capital of $50,000, to take over and expand local company of same name, with mill at 344 South Avenue 17. Incorporators of new company include Donald C. Young, and Leon Shaen.

Imperial Print Works, Inc., Paterson, N. J., have been formed with capital of $25,000 and 1,000 shares of stock, no par value, to operate a local dye and print mill. New company is represented by Alexander Moskowitz, 126 Market St., Paterson.

Jefferson Dye Works, Inc., Paterson, N. J., have been chartered with capital of 1,000 shares of stock, no par value, to operate a local dye and print works. New company is represented by Emanuel Shavick, 140 Market St., Paterson.

Fairforest Finishing Co., Clevedale, S. C., is planning an increase in its authorized capital stock from $500,000 to $1,000,000. Action will be taken at a stockholders' meeting on May 15.

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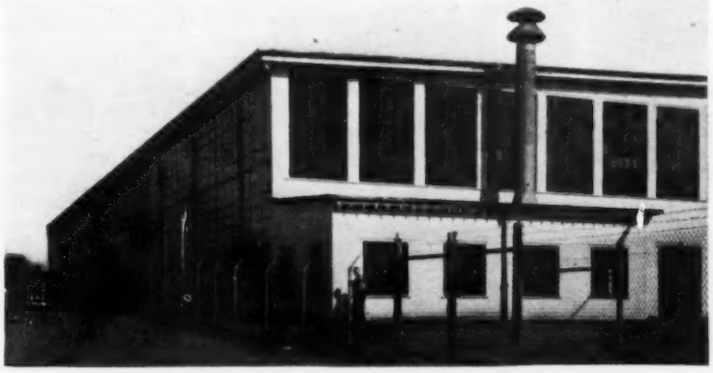

Addition to bleach house recently completed by Southern Bleachery & Print Works, Inc., Taylors, S. C. Four additional printing machines have been installed in this extension to be operated on shirtings. These machines bring the total operated by the company to fourteen.

TEXTILE WORLD'S

Engineering Digest

ALL of us possess sales-resistance, although of course in varying degrees. It is often extremely useful. Sometimes, however, it gets in our way. We are apt to miss the help which a salesman can give us, just because we don't want to expose ourselves to his selling ability.

Most firms selling equipment, accessories, and supplies to the textile industry have specialists in the field, either as salesmen or as consultants. Obviously, they have an ulterior motive; they want to make or influence sales. Beyond that, however, they are one of the most important sources of help which operating executives in many textile mills have available. This is particularly true in connection with smaller plants which cannot afford a staff of technical experts.

Recently, we heard of another case of a manufacturer who will not permit salesmen to interview any of his department heads. This attitude once prevailed among many mills, but fortunately is passing out. Its purpose of course was to prevent "secrets" from leaking out. The answer is that the same wall which keeps ideas from going out of a plant, also keeps ideas from coming in. And that price is too much to pay for "secrecy" —which doesn't mean a thing anyway.—*Editor.*

Master Mechanics Meet

Maintenance of textile machinery was the theme of the spring meeting of the master mechanics division, of the Southern Textile Association, held May 8, in the Y.M.C.A. at White Oak Mill, Greensboro, N. C. L. M. Kinkaid, master mechanic, National Weaving Co., Lowell, N. C., chairman of the organization, presided. Short addresses were made by Robert Jackson, vice-president and general manager of National Weaving Co., and Ben Cone, executive of the Cone Mills, Greensboro, N. C. H. P. McKelvie, vice-president of Firestone Cotton Mills, Gastonia, N. C., presented a paper on "Maintenance of Electrical Equipment" Ira Harris, master mechanic, Lowell, N. C., spoke on "Village Maintenance and Improvement."

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Carolina Safety Conference

North and South Carolina textile plants participated in the Seventh Annual Statewide Industrial Safety Conference, held May 14 and 15, at Charlotte, N. C. There were over 60 speakers on the program and 14 special meetings. Textile men on the program included B. B. Mangum, personnel director, Collins & Aikman Co., Roxboro, N. C., C. C. Campbell, Carolina Cotton & Woolen Mills, Spray, N. C., H. H. Willis, dean of the Clemson Textile School, Clemson, S. C., M. W. Heiss, employment manager, Cone Mills, Greensboro, N. C., H. C. Miller, comptroller, Firestone Tire & Rubber Co., Akron, Ohio, representing Firestone Cotton Mills, Gastonia, N. C., and A. Stanley Llewellyn, manager Kendall Mills, Camden, S. C.

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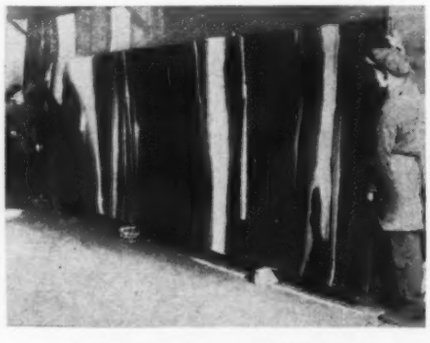
Two New Types of Lamps Developed by G.E.

The Lamp Development Laboratory of General Electric Co., Nela Park, Cleveland, Ohio, announces that progress is being made in the development of two new types of mercury lamps. The first is known as a fluorescent lamp and appears to have great potentialities in providing a wide range of lighting effects. The second is called a capillary lamp and is said to produce in some cases a brilliance exceeding that of the sun, emitting a wealth of photochemical rays useful in commercial, industrial and therapeutic applications.



Allegheny Steel Co., Brackenridge, Pa., has completed production and shipment of what is believed to be the largest, polished stainless-steel sheet yet produced. This sheet, one of an order of fifteen, is slightly over 208 in. long, 72 in. wide, ¾ in. thick, and weighs approximately 810 lb. It was furnished with a bright smooth finish, and is used in forming the bottom of dye kettles.

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National Power Show Announced

Over 100 former exhibitors at the National Exposition of Power and Mechanical Engineering have reserved space for the 12th annual exposition, which will be held Nov. 30 to Dec. 5, inclusive, at the Grand Central Palace, New York. Refractories, burners, stokers, boilers, power generating equipment, engines, pumps, steam fittings and equipment, control instruments, etc., will be displayed. The exposition is coincidental with the annual meeting of the American Society of Mechanical Engineers.

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Engineering Trade News

General Electric Co., Schenectady, N. Y., announces that J. D. Wright and Karl H. Runkle have been appointed assistant managers of the industrial department. Prior to their promotions, Mr. Wright was assistant head of the industrial department's engineering staff, and Mr. Runkle was manager of sales for the department's mining and steel mill section. J. N. Hume is manager of the department.

Angell Nail & Chaplet Co., Cleveland, Ohio, is enlarging its plant and installing equipment for drawing wire to go into its "scientific nail," in order to care for increased business.

Crane Co., 836 S. Michigan Ave., Chicago, has appointed George L. Erwin, Jr., as assistant to P. R. Mork, vice-president in charge of sales. Mr. Erwin formerly was general sales manager of Kearney & Trecker Corp., Milwaukee, manufacturers of machine tools.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., announces that Walter E. Hawkinson has been elected treasurer, succeeding the late Raymond Dill, who died a few weeks ago. Mr. Hawkinson has been with the company in various capacities for 29 years.

The Foxboro Co. has removed its New York office to the Graybar Building, 420 Lexington Ave.

The Bristol Co., Waterbury, Conn., have appointed L. E. Mustard as district manager of the company's branch office in Detroit.

Morse Chain Co., Ithaca, N. Y., announces that George E. Olmstead, New Haven, Conn., who has been operating as a manufacturer's agent, recently joined the staff of Morse Chain Co.'s New York office. He will continue to cover Connecticut, being located at New Haven. E. H. Jessop, formerly with the company, is now in charge of Morse chain sales for Tranter Mfg. Co., 105 Water St., Pittsburgh, Pa.

Veeder Root, Inc., Hartford, Conn., announces that Harvey L. Spaunburg, assistant secretary since the formation of the present consolidated company was elected secretary at the last director's meeting. All directors were reelected.

Hercules Powder Co., Inc., is opening

new offices at 22 East 40th St. at Madison Ave., New York.

General Electric Vapor Lamp Co. has transferred Thomas Collins, Jr., specialist in textile lighting, from New England to the Charlotte, N. C., office.

Air Conditioning Manufacturers Association, Washington, D. C., recently was elected to membership in the Exhibitors Advisory Council, Inc., as an associate group. William B. Henderson, executive vice-president of the association, is contact representative in the council, an organization established in 1926 to serve as clearing house for information on all types of industrial and trade shows.

Link-Belt Co., Chicago, has appointed Industrial Supplies, Inc., Poplar Ave. & River Front, Memphis, Tenn., as authorized stock-carrying distributors of Link-Belt machines and equipment.

Joseph G. Worker, general sales manager of the American Engineering Co., Philadelphia, manufacturers of Taylor stokers, Lo-Hed hoists, A-E-CO marine auxiliaries and Hele-Shaw pumps, motors and transmissions announces the appointment of John F. Cooke to have charge of the sales of the hoist, pump and marine division. The company has removed its New York office from 40 West 40th St. to 75 West St.

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Engineering Mill News

Putnam (Conn.) **Woolen Corp.** is building a new boiler house, one story, of brick and concrete construction, monitor type. E. J. Cross Co., Worcester, Mass., has the general contract.

Pacolet Mfg. Co., New Holland, Ga., awarded contract to the Woodward-Stephens Electric Co., Anderson, S. C., for rewinding and general repair work on 700 large and small motors damaged in the recent tornado.

Diamond Braiding Mills, Chicago Heights, Ill., have asked bids for new addition to power house, to include installation of turbine unit, boilers and auxiliary equipment. Cost over $70,000, with equipment. Hunter & Co., 608 South Dearborn St., Chicago, Ill., are consulting engineers.

Waterloo (N. Y.) **Mills, Inc.,** plans installation of generators to supply its plant with electric current. The company also has plans in progress for alterations and improvements to facilitate its fabric production.

Champlain Spinners, Inc., Whitehall, N. Y., has completed construction of dikes around its mill for flood prevention.

Cleveland Mill & Power Co., Shelby, N. C., has let contract for piping system and assemblage of equipment for conservation of all exhaust steam and condensate returns, reclaiming heat values for hot water system for use in the dyehouse and bleachery. Plans and specifications were drawn by George C. Bell, consulting engineer, Charlotte, N. C.

William G. Stolz Sons, Inc., Reading, Pa., hosiery finishers, are building a concrete fuel bin.

Arcade Cotton Mills, Rock Hill, S. C., have had the Textile Shop at Spartanburg, S. C., design and install their "No Drip" slasher exhaust system for their slashers, and make the exhaust pipe for the new Hermas shearing equipment.

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Lubrication of Woolen and Worsted Machinery

THIS CHART is compiled from an article on the lubrication of woolen and worsted machinery which appeared in the March issue of *Lubrication*, published by Texas Co., 135 East 42d St., New York.

SCOURING MACHINERY

Plain bearings—Straight mineral machine oil of 250 to 400 sec. Saybolt viscosity at 100° F. is satisfactory when applied by means of oil cups, ring oilers, etc. A medium grade of cup grease is advisable where lubrication devices are not available; also applicable to cam mechanisms.

Gears and chains—Heavy oil or gear compound is recommended for gears inclosed in oil-tight housing. Grease is advisable for exposed installations. A product with a viscosity akin to cylinder stock, 100 to 150 sec. Saybolt at 210° F., will adequately lubricate and protect the teeth of larger gears.

CARDING MACHINERY

Comb boxes—Light mineral oil or low-viscosity grease, depending on design of box, will promote lower frictional temperature and insure a more uniform clearance between comb and doffer cylinder. It is imperative that the lubricant does not splash from box. Soap content usually will give sufficient body to prevent splashing.

Sleeve-type roll bearings—Straight mineral oil of 300 to 400 sec. Saybolt at 100° F., if there is no danger of leakage.

Ball bearings—Highly refined straight mineral oil from 100 to 300 sec. Saybolt, according to speed, if there is no leakage. Low-torque grease is advisable if there is likelihood of leakage.

Gears and chains—Straight mineral lubricant of 100 to 150 sec. Saybolt at 210° F. is effective, although it is practicable to use medium-bodied cup grease or steam-cylinder oil. Care should be taken to avoid splashing.

BACKWASHERS

Drums or cans—Relatively inert lubricant, or grease of high melting point, must be used to combat high temperature conditions. Steam-cylinder oil can be used in some instances.

Bearings, driving chains and gears—Each moving part should be studied carefully, and lubricated according to installation.

COMBING MACHINES

Dabbing motion—A comparatively fluid grease should be used where the entire mechanism is operated in a bath, providing leakage and splash can be avoided.

Bearings—Medium-heavy straight mineral oil or medium consistency grease should meet requirements. The latter can be used on the cam motions, but must have sufficient body to withstand the pounding of the cam finger, as well as any tendency to drip or throw off.

General lubrication—Body or viscosity of lubricant should be selected to resist thinning effect of heat.

DRAWING AND SPINNING FRAMES

Roll Bearings—Fairly light grease heavy enough to prevent creeping on rolls. Same lubricant is applicable to gearing and cam mechanisms, although a heavier product is often more economical.

Ring- or cap-type spindles—In general, should be treated with a lubricant the viscosity of which varies inversely with the speed involved, the normal range being 90 to 150 sec. Saybolt at 100° F. Temperature of spindle oil should not average more than 15° F. higher than the surrounding temperature of the room. Viscosity of the oil should be reduced as low as temperature differences permit. Occasionally, it is advisable to use an oil with a small amount of fatty matter compounded in order to facilitate removal of oil spots from goods in case of adverse operating conditions. Utmost care should be taken to see that spindle oil is kept as clean as possible, and that oil reservoirs are cleaned out regularly.

Mule frames—Normally, are lubricated similarly to the ring- or cap-type frame. However, where spindle requirements differ, such as open bases, it often is advisable to use a somewhat heavier or more viscous oil. As a rule, an oil having a viscosity of 200 to 300 sec. Saybolt at 100° F. is satisfactory. Where a mill operates different types of frames and wishes to use the same spindle oil throughout for economic reasons, it is satisfactory to compromise on an oil of perhaps 150 sec. Saybolt. For general lubrication, oils or greases similar to those used on the ring- or cap-type frame generally are satisfactory; or specifically, light-bodied grease for roll bearings, 250 to 400 sec. viscosity for other oil lubricated parts, and medium grease for exposed cams, gears and pressure-gun fittings.

WEAVING EQUIPMENT

General lubrication—Warping and slashing machines and looms must be considered with the idea of preventing stains on the goods. The type of lubricant depends on the speed and location of the moving part.

Bearings—Sleeve-type bearings, designed for oil lubrication, can be served with a straight mineral oil 300 to 400 sec. Saybolt at 100° F. Heavier bearings, such as those which carry cloth rolls or worm drives for pattern cylinders, may require a heavier product, such as a light grease.

Gears and chains—An adhesive lubricant generally is used in order to prevent dripping or throwing off onto the woven goods. Gears and chains of the so-called silent type will function best if located in relatively oil-tight casings and oil-lubricated with a straight mineral lubricant of 100 to 150 sec. Saybolt at 210° F.

FINISHING MACHINERY

Plain bearings—Straight mineral oil of 300 to 400 sec. Saybolt is satisfactory. If grease is used, a product composed of non-soluble soap with a consistency of medium-compression cup grease is desirable.

Ball bearings—A straight mineral product of 100 to 300 sec. Saybolt at 100° F. should be used with ball or roller bearings installed in oil-tight housings. The problem is to protect the metal from corrosion as well as friction. Lighter grease than necessary for plain bearings can be used.

General lubrication—The main problem all the way through is to protect the goods from spotting and the moving parts from corrosion.

FREE FOR THE ASKING—

READERS interested in the catalogs and other useful literature reviewed on this page may secure copies by writing to TEXTILE WORLD, 330 West 42d St., New York, N. Y.

Cleaning Machinery

Saco Lowell Shops. April issue of Saco Lowell *Bulletin* containing a brief history of Saco Lowell Roth drafting, notes on the cleaning and blending reserve, a comber sliver analysis, and figures showing savings as a result of modernization.

Motors

Reliance Electric & Engineering Co. Two mailing pieces describing the Type-T heavy-duty motors.

Rayon Sizing

Charles B. Johnson. April issue of *Rayon Warp Sizing Specialist* carrying article on temperature control in warp sizing by A. W. Chase, manager of the Textile Division of Foxboro Co.

Portable Elevators

Lewis-Shepard Co. Catalog folder describing a large number of different type "stackers" or portable elevators.

Portable Cable

General Electric Co. Illustrated 27-page catalog describing tellurium, all-rubber, glyptal-compound, loom-sheath, and braided types of portable cable.

Thermometers

Bristol Co. New 88-page illustrated thermometer catalog covering liquid-filled, vapor-tension, and gas-filled recording, indicating and controlling thermometers. In addition, there is much useful information on industrial stem thermometers, resistance thermometers, humidity measuring instruments, time-temperature controllers, etc. There are over 500 temperature-recording charts, which enhance the catalog as an engineering handbook.

Twisting

Atwood Machine Co. April issue of Atwood Twists containing articles explaining why Atwood machines are ideal for high-speed twisting of crêpe hosiery yarns and large-package twisting of full-fashioned hosiery yarns.

Welding

Linde Air Products Co. Bulletin on Oxwelding brass and bronze. Includes a special article on the welding of commercial yellow brass pipe.

Harness Frames

Steel Heddle Mfg. Co. Series of illustrated folders covering the following types of frames: Artex frame for silk and rayon, Universal Ideal single iron end frame for silk weaving, Universal double iron end frame for cottons and worsteds; Worstex frame for worsteds, Universal double iron end frame with dual slide hook, combination end frame for woolens and worsteds, Unitex frame for rayon and other synthetic yarns, and Universal single iron end frame for fancy fabrics with 10 to 30 frames per set.

Rayon Warp Sizing

Kem Products Co., Inc. Initial number of *Sizing News*, describing experimental rayon slasher, cohesion test for sized rayon, and discussion of reason for uneven results in sizing.

Factoring

James Talcott, Inc. April issue of the *Factor*, containing articles on origin and development of factoring, factoring drop-shipments, and history of textiles in America.

Water Softening

Permutit Co. Illustrated 48-page booklet devoted primarily to hot lime soda water softening and discussing in detail equipment and methods employed; contains also numerous tables of value to those interested in water softening.

Control Instruments

Brown Instrument Co. Booklet, "Instruments from the Executive Viewpoint," discussing applications of and savings effected by control instruments. Pamphlet describing latest models of Brown potentiometer pyrometers.

Boiler Tubes

Babcock & Wilcox Tube Co. Illustrated 16-page booklet entitled "Seven Facts About Boiler Tubes." The theme of the booklet, T-14, is in general an explanation of the effect of manufacturing processes on the quality of boiler tubes. Also booklet describing insulating fire brick and giving table of properties.

Production Control

Reeves Pulley Co. Illustrated 12-page booklet, T-361, covering the subject of automatic production control for machines and conveyors. Hydraulic, mechanical, electric, and differential controls are described in detail.

Ball Bearings

Norma-Hoffman Bearings Corp. Bulletin, F-951, devoted to the new "cartridge precision ball bearing." Explains applications, and reasons why bearing life should be longer.

Hosiery Machines

Louis Hirsch Textile Machines, Inc. Folder showing distribution of Kalio "Complet" machines.

Compressor

Allis-Chalmers Mfg. Co. Engineering leaflet, 2218, devoted to the recently announced Ro-Twin compressor, containing specifications, table of capacities, and approximate dimensions.

Belting Manual

E. F. Houghton & Co. New leather belting manual, "How to Belt Your Drives For More Profit," containing helpful facts for the belt man, including such material as selection and care of leather belts, how to make them endless on pulleys, types of lacings, cementing instructions, preservatives, transmission data, engineering tables and simple belt formulae. Also contains full description of various types of belting made by Houghton including the newer Vim Tred leather belting.

Travelers

Victor Ring Traveler Co. April issue of the *Traveler*, containing article by W. O. Blanford devoted to methods of getting the most efficient service from travelers.

Screws

Holo-Krome Screw Corp. An 8½x11 in. booklet, H. K. 166, containing standards for hexagonal-type socket set and cap screws as recently approved by the American Standards Association. Also includes dimensions of heads, bodies, screw and thread lengths, screw points, sockets and wrenches.

Leather Belting

J. E. Rhoads & Sons. Bulletin describing "good points" of Tannate leather belting. Includes typical load-slip curves for different kinds of belting.

Wool Finishing

James Hunter Machine Co. March-April issue of Hunter *Counselor*, containing article by Austin T. Levy, treasurer, Stillwater Worsted Mills, Harrisville, R. I. Featuring also economical stock drying, hydraulic fulling mill control, induced draft tentering, and continuous squeeze roll extraction.

Air Conditioning

Parks-Cramer Co. April issue of *Parks' Parables* containing description of installation of Air Changer in one of weave rooms of Riverside & Dan River Cotton Mills, Danville, Va.

Woolen Manufacture

Davis & Furber Machine Co. May issue of Davis & Furber *News*, containing article on increasing production in staple-goods mills.

Pumps and Diesels

Worthington Pump & Machine Corp. Series of bulletins covering centrifugal pumps for boiler feed service, centrifugal fire pumps, centrifugal pumps for underpass drainage, self-priming centrifugal pumps, condensate return units, direct-injection diesel engines, and de-aerating heaters; also turbine and piston pumps.

Combustion Control

Hays Corp., Carrick Engineering Co., and Cochrane Corp. ("teamed for efficiency"). Publication No. 2246 describing the instruments and combustion control devices of three companies which have cooperated to develop an advanced system of measuring and control equipment for boiler operation. Devices described include Hays boiler instruments, Carrick combustion-control devices, and Cochrane flowmeters.

Dyeing and Printing

National Aniline & Chemical Co., Inc. March issue of *Dyestuffs*, containing articles on dyeing of acetate knit goods, removal of spots from hosiery, application of azoic colors to cotton, screen printing, etc.

Optical Devices

Bausch & Lomb Optical Co. Catalog giving description of line of polarizing microscopes and accessories. Second catalog devoted to illuminators and lamps.